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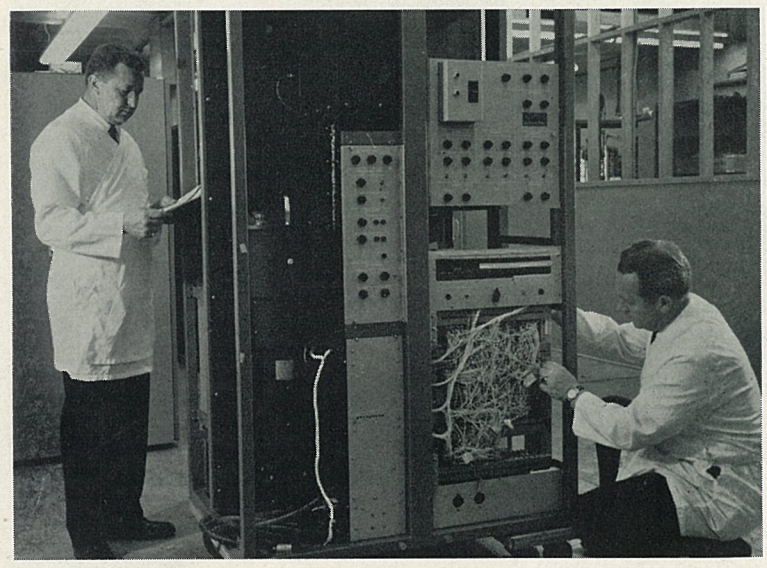
SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

Vol. 17, No. 1 | PUBLISHED BY GENERAL DYNAMICS CORPORATION | Thursday, January 2, 1964



NEW GD/E TASK — Les Falos and Joe Cyranek of GD/Electronics-SD check components of display generator, first of 64 units to be delivered under new contract for display equipment to go into NASA Integrated Mission Control Center at Houston, Texas.

GD/E-SD Given Display Task For NASA Center

General Dynamics/Electronics division at San Diego has received a $4 million contract for computer display equipment to go into National Aeronautics and Space Administration's control center at the Manned Spacecraft Center at Houston, Texas.

The contract was awarded by Philco Corp., responsible for development and equipment of NASA's Integrated Mission Control Center, vital control center during the coming Gemini rendezvous and Apollo manned moonshot programs.

In the Center, rendezvous, orbital, and environmental data from Gemini and Apollo spacecraft, as well as physiological data on the astronauts, will be acquired and processed by digital computers. The GD/E-built equipment will translate the computer-generated information by use of special cathode ray tubes. Television systems will transfer data from tube screens to television displays for presentation directly to the flight control teams.

Gemini rendezvous and Apollo flights will be directed by the new Mission Control Center just as Project Mercury flights were controlled by the Mercury Control Center at Cape Kennedy, Fla., which was designed and built by GD/Electronics.

Division head, John L. Lombardo, announced that R. E. Thoman has been designated project engineer, reporting to A. H. Wisdom, GD/E manager of research and engineering-data products.

SWANK IS SPEAKER AT HOSPITAL MEET

Jack Swank, industrial relations manager for GD/E-San Diego, was a panelist last month at a meeting of administrators for prominent hospitals in the San Diego area. He spoke on fringe benefits in industry.

Golden Named Dynamics Vp

Max Golden, formerly special assistant to the president of General Dynamics Corporation, has been named a vice president of the Corporation, Roger Lewis, president, announced last week.

Max Golden

Prior to joining Dynamics in January, 1962, Golden had been with the Air Force since 1948. He was appointed Deputy Assistant Secretary of the Air Force-Materiel in 1957 and served as AF general counsel, 1958 to 1962.

Born in Passaic, N. J., Golden attended New York University and received his LLB degree from Rutgers University magna cum laude in 1935. He was admitted to the New Jersey bar the following year.

C-141 Starlifter Scores Success

Maiden flight of the Air Force C-141 Starlifter, for which General Dynamics/Convair is building tail sections, Dec. 17 from Dobbins Air Force Base in Georgia, was an unqualified success, according to reports from Lockheed Aircraft Corp., prime contractor.

The giant jet cargo plane roared from Dobbins AFB runway at 12:45 p.m. (EST). Takeoff run was 2,500 feet. Fifty-five minutes later, at 1:40 p.m., the C-141 made a perfect landing.

The Lockheed test crew, headed by Leo Sullivan, chief engineering test pilot at the controls, who manned the plane, said that the Starlifter performed like planes with several flights' experience.

"It exceeded our expectations,"

(Continued on Page 2)

Phone Dictation System Started

Wire messages now can be sent over the telephone at GD/Convair with the installation of telegram dictation equipment in Bldg. 19's switching center.

The new Dial Wire Service equipment, to all practical purposes, makes every Plant 1 telephone a dictating machine to expand use of the company's Private Wire System and reduce communications expense. It replaces the Electronic Secretary recording system which could not handle the volume of messages passing through the division.

Nearly $12,000 will be saved this year alone by removing obsolete transceivers within the plant. Another $5,000 savings will come from eliminating the time of hand-carrying and picking up messages at the switching center.

Messages may be dictated over any phone to the recorder on a 24-hour basis, including weekends and holidays.

Incoming messages will be transmitted to one of five receivers in Plant 1. Recipients will pick up messages at assigned locations.

Locations are: Bldg. 1 administration area, contracts files; Bldg. 4, service parts; Bldg. 5, engineering typing pool; Bldg. 8, accounting; Bldg. 51, 3rd floor, Astronautics facsimile transmission center.

Transceivers in GD/Convair engineering and GD/Electronics will be retained for the present.

DWS telegram forms (Form 3497) have been distributed to principal users and may be ordered from stationery stores. These forms carry complete instructions for phoning a message. No copy need be sent to the switching center.

R. H. Williams, Convair communications coordinator, and R. I. Morse, in charge of the San Diego switching center, who were responsible for installation of the new equipment, said that they were gratified by the response of

(Continued on Page 2)

General Dynamics Reaffirms Merit Employment Policies

General Dynamics Corporation last month reaffirmed its corporate policy in regard to "Merit Employment" to once again remind divisions that "all persons shall receive equal employment opportunities in accordance with their individual job related qualifications, without regard to race, creed, color or national origin."

By executive order signed by Algie A. Hendrix, vice president-industrial relations, and approved by Roger Lewis, president, General Dynamics repeated its position (**GD NEWS**, Sept. 13, 1961), setting forth that "Equal employment opportunities include, but are not limited to, employment, upgrading, demotion or transfer, recruiting or recruitment advertising, layoff or termination, rates of pay and selection for training, including apprenticeship."

Division managers continue to be responsible for implementation of the policy and the Corporate vice president-industrial relations is responsible for policy guidance and coordination.

As did the previous executive order on the subject, issued July 26, 1961, the present order states that "there shall be a continuous effort to maintain awareness of this policy throughout the organization."

General Dynamics Divisions Give Thumbnail Reports on 1963 Activities

Following are brief reports from General Dynamics divisions on significant news developments during 1963.

Centaur Tops News at Astro

Successful flight Nov. 27 of Astronautics' Atlas-Centaur Two, initial space use of potent hydrogen fuel destined for many future space requirements, overshadowed other major Astro accomplishments in 1963 which included the Atlas missile's fourth straight success in the Mercury manned space tests.

J. R. Dempsey
Astro president

During the year Atlas ICBM earned the highest Air Force "in commission" weapon rating, while updating work found Astro crews returning to operational sites. FLOX (liquid fluorine-oxygen) was under study as means of an 88 per cent increase in Atlas SLV payloads for lower orbital missions. Piggyback pods aboard Atlas continued to afford low-cost space research, while newer powered pods, called SATAR, were being developed under the same concept.

GLOTRAC, globe-spanning spacecraft tracking network, was introduced in 1963. Two Azusa tracking systems built by Astro continue to track every ballistic missile launched at AMR which carries Astro-built transponders.

Astro began work on a 2,420-acre test site near Sycamore Canyon; a new $7 million Combined Systems Test Site for Atlas/Centaur/Surveyor at the main plant; and a new $14.4 million Complex 36-B launch site for Centaur at Cape Kennedy.

★ ★ ★

Atomic Enters New Frontiers

General Atomic continued its development of advanced systems of power generation and energy conversion and pushed on into new frontiers as its scientists made significant strides in bringing about controlled fusion reaction, and initiated research in high energy flow phenomena.

Frederic de Hoffmann, GA president

The end of 1963 saw three new General Atomic TRIGA nuclear research reactors placed in operation to make a total of 20 now in use around the world.

The prototype General Atomic High Temperature Gas-cooled nuclear station (HTGR) was over half completed at Peach Bottom, Pa. Conceived and developed by General Atomic, the HTGR will be the first nuclear power station in the world capable of generating commercial electrical power at modern steam conditions of 1,000 degrees F. temperature and pressure of 1,450 psi.

A thermoelectric converter developed for the Air Force and launched into orbit proved that it could convert solar energy into electrical energy to provide auxiliary power in space. General Atomic is currently doing preliminary design under an Atomic Energy Commission contract on a 1,000-megawatt gas-cooled nuclear reactor; studying a system of saline water conversion for the Department of Interior; and entering into research programs, financed by electric power companies, to advance technological economics of nuclear power, and to carry out advanced fuel studies.

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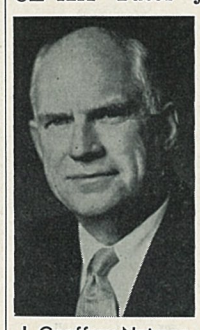
First Canadair Jets Delivered

Major accomplishments at Canadair Limited, Montreal, during 1963 included:

Delivery of the first of 190 CL-41A Tutor jet pilot trainer airplanes to the Royal Canadian Air Force.



J. Geoffrey Notman
Canadair president

Completion of flight testing the CL-41R radar systems trainer prototype.

Sale of three CL-44 swing tail freighter airplanes to Japan Cargo Airways.

Exhibition of the CL-44 freighter and CL-41R trainer at the Paris Air Salon.

Completion of 200 CF-104 Super Starfighter tactical aircraft for the Royal Canadian Air Force.

First of 140 F-104G Super Starfighters accepted for the joint U. S./Canadian military assistance program for NATO countries.

Official go-ahead for the CL-84 tilt wing vertical or short-run takeoff and landing (V/STOL) aircraft, slated for first flight in 1965, jointly financed by Canadian government and Canadair.

Official go-ahead for the CL-89 short range reconnaissance drone system, jointly financed by the British and Canadian governments.

Evaluation by the Norwegian Army of a CL-91 Dynatrac, articulated tracked utility carrier vehicle that is under development for the U. S. Army.

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Convair Seeks New Products

Research leading to development of new and imaginative products gained more emphasis in 1963 for Convair division, long a major airframe manufacturer.

J. H. Famme

With a distinguished past in research and development, Convair engineers are delving into many new areas. Among them: a plane that can take off and land on a bubble of air, an extremely fast light attack aircraft, vertical floats to turn a ship buffeted by heavy seas into a stable platform, telemetering oceanographic buoys to relay information from mid-ocean, and others that cannot even be touched upon.

Convair's first Little Joe II launch vehicle for NASA made a most successful test flight in August; Convair-produced landing mats now form an impact area in a Marine Corps airfield;

(Continued on Page 3)

Air Force C-141 Starlifter Scores Success In Maiden Flight Last Month From Dobbins AFB

(Continued from Page 1)

Sullivan said. "Everything was fine."

Col. Max Hammond, AF C-141 Systems Program Office Director; W. A. Pulver, president of Lockheed-Georgia Co., and C. S. Wagner, Lockheed-Georgia vice president in charge of C-141 program, were elated over the Starlifter's performance. All paid tribute to the Air Force, FAA, Lockheed, and subcontractors who participated in development of the plane.

GD/Convair President J. H. Famme wired Lockheed-Georgia his congratulations:

"I wish to extend to you my sincerest congratulations on your outstanding achievement today. A program of the magnitude of the C-141, planned four years ago and meeting its first flight date precisely as proposed, is indeed a fine accomplishment. All of us in Convair wish you continued success."

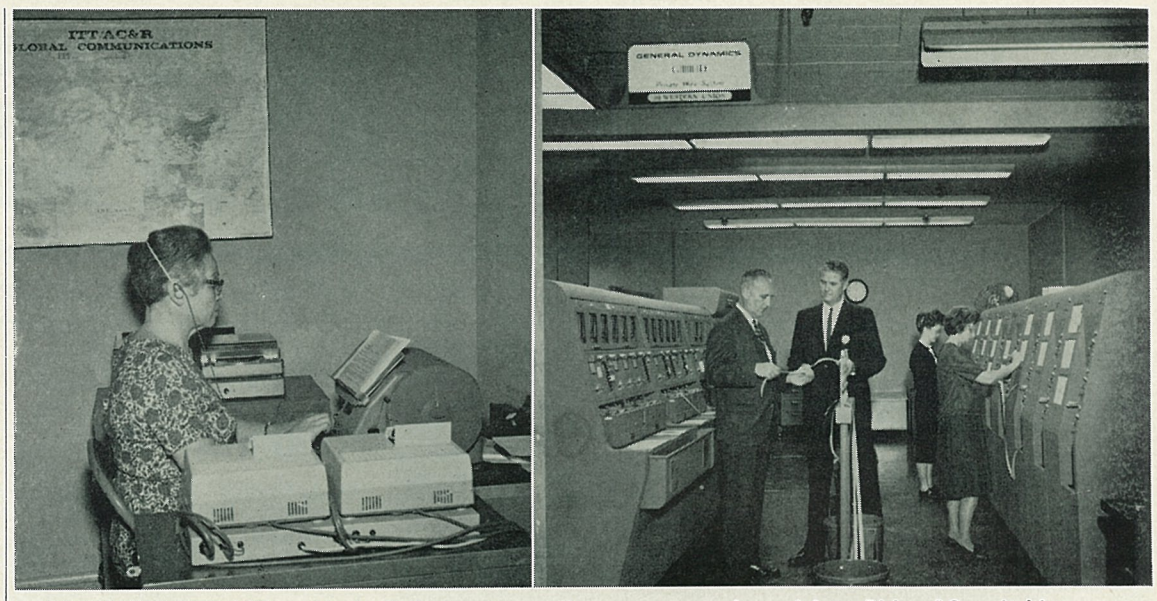
And, in turn, received the following message from H. Lee Poore, Lockheed-Georgia's C-141 manufacturing manager: "That big tail looked real excellent at 12:45 p.m., our take-off time with a successful 55-minute flight. Congratulations to you and all of the folks!"

GD/Convair is building C-141 horizontal and vertical stabilizers under a contract for 134 empennages.

The first flight date was well ahead of the Dec. 31, 1963, deadline set two-and-a-half years ago by AF Systems Command's Aeronautical Systems Division, Wright-Patterson AFB, Ohio.

The Starlifter is the first aircraft designed for both military and civilian use and the first ever procured under Air Force-Federal Aviation Agency coordination. The AF and FAA will simultaneously test and certify the plane.

The C-141 is capable of crossing any ocean nonstop at more than 500 miles an hour; can transport 154 troops or 123 paratroopers or a combination of men and supplies. Its 145-ft. fuselage can carry a 70,000-lb. payload. The plane's wing span measures 160 feet. Each of its four Pratt & Whitney aircraft fan-jet engines generates 21,000 pounds of thrust.



FAST WIRE SERVICE — Merle Fullerton transcribes message phoned into Bldg. 19 switching center and recorded on new Dial Wire Service equipment. At right is overall shot of communications center which provides two-way wire connections between General Dynamics locations. From left, R. I. Morse of Corporate Office, responsible for San Diego switching center; R. H. Williams, GD/Convair communications coordinator; operators Edna Koles and Bea Levenson.

All Military Spares Perfect in November

All military spares requirements were shipped on schedule from GD/Convair for the month of November.

"A record of 100 per cent concurrency is always a goal, but also one that is relatively difficult to reach," W. R. Bruce, director of operations, said.

The month's perfect record was termed a singular achievement, in view of the many varied operations involved in spares orders.

Division President J. H. Famme commended the added efforts of all concerned in attaining this elusive milestone, and urged all functions to strive for a continued perfect standing.

Convair's spares activity supports Convair-Liner twin-engine aircraft, T-29s, 880/990 jet transports, F-102s, F-106s, and, currently, Little Joe II launch vehicles and C-141 empennages, where spare parts are ordered concurrently with production.

Budgets and Analysis Depts. Are Combined

A consolidation within the controller's office at GD/Convair has been effected with the merging of two departments, project budgets and financial analysis (Dept. 95) and indirect budgets (Dept. 92).

F. N. Minter has assumed responsibility as manager of the newly-formed budgets and financial analysis department (Dept. 92-0).

Joining of the two departments into one resulted from the resignation of W. W. Hass, manager of budgets and financial analysis.

Minter joined Convair in 1940. He has held a number of administrative posts in the division's accounting functions, most recently as manager of indirect budgets.

PHONE DICTATION SYSTEM STARTED

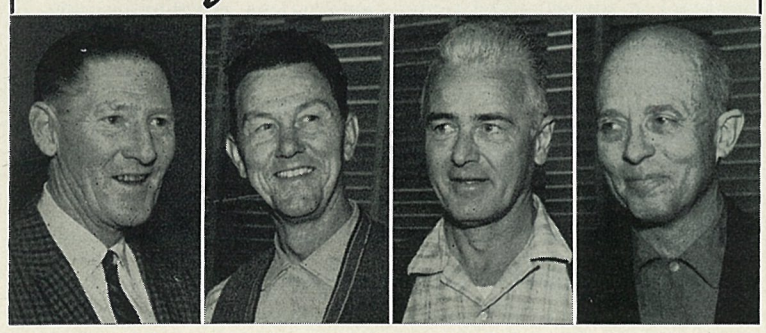
(Continued from Page 1)

departments throughout introduction of the system. Traffic reached, and now is exceeding, expectations as principal users of the wire service are becoming more familiar with its use and convenience.

Seven general meetings with more than 150 people who handle actual transmission of most of the wire messages in the division were held during the first two days (Dec. 16-17) of operation. More instruction and review will be given at any time there is a request, said Williams, who may be reached at ext. 525, Plant 1.

Since cost of a wire message is about half the cost of a long distance call, everyone is urged to use the new service to the fullest.

Log Book Entries



This quartet of GD/Convair men recently received 25-year service emblems from W. R. Bruce, director of operations. From left, C. E. Keptner, Dept. 42-8; F. J. Hammack, Dept. 140; R. W. Talmage, Dept. 119; C. V. Beeson, Dept. 101.

Service Emblems

CONVAIR

Service emblems due during the period Dec. 16 through Dec. 31.

Twenty-five-year: Dept. 6-2, N. W. Reed.

Twenty-year: Dept. 16-6, H. B. Day; Dept. 91-2. Catherine S. Spoden.

Fifteen-year: Dept. 6-2, J. J. Murphy, J. J. Wokuluk; Dept. 25-2, C. O. Barnett; Dept. 128, E. E. Hatz.

Ten-year: Dept. 6, C. J. Leoni, G. E. Sawyer, R. V. Shields.

ELECTRONICS

Fifteen-year: Dept. 40-00, Wanda M. Rose; Dept. 72-00, Bertha A. McClure.

Ten-year: Dept. 14-20, D. M. Fleischhauer; Dept. 71-00, K. H. Applequist; Dept. 72-00, Mary D. Katalack, Norma T. Rooney.

Awards

CONVAIR

Employee Suggestion awards approved for periods ending Dec. 6 and Dec. 13.

Dept. 15, W. J. Bullock, $39.90; N. D. Jones, $30.

Dept. 25, W. T. Toon, two awards, $55.40 and $40.56.

Dept. 42, R. K. Johnson, $45.40; E. J. Kline, $20.

Dept. 101, G. W. Oliver and J. H. Hammer, joint award, $25 each.

Dept. 102, R. F. Murphy $166.50.

Dept. 115, L. M. Persing, $32.

Dept. 119, R. W. Talmage, $50.20.

Dept. 128, C. H. Fenstermacher and E. E. Carpenter, joint award, $31.90 each.

Dept. 131, A. V. Elo, two awards, $15 and $35; J. A. Gliebe and A. J. LeBeau, two joint awards, $8.95 and $17.90 each.

Dept. 141, I. D. Howarter, three awards, $22.70, $15 and $20.

Dept. 171, S. S. Stearns and A. J. Winner, joint award, $6.20 each; J. Velazquez, $76.40.

Cost Improvement Proposals approved for the same periods.

Dept. 115, O. C. Banke.

Dept. 131, C. D. Foster.

Clark Kerr Jr., Dept. 6-2, wears 25-year emblem presented to him by C. W. Frick, Convair vice president-engineering.

Retirements

CONVAIR

BOYD—Jeff D., Dept. 401-5. Seniority date Nov. 8, 1950, retirement effective Dec. 10.

COATES—Goldie O., Dept. 25-3. Seniority date May 13, 1952, retirement effective Nov. 20.

DONALDSON—Homer M., Dept. 131. Seniority date March 9, 1942, retirement effective Dec. 12.

GARDINER—Daniel R., Dept. 149. Seniority date Oct. 2, 1950, retirement effective Nov. 2.

HAINES—William R., Dept. 48-21. Seniority date Feb. 8, 1951, retirement effective Nov. 27.

INGRAM—Mabel C., Dept. 218. Seniority date Oct. 11, 1950, retirement effective Oct. 19.

MARUSKA—Frank E., Dept. 401-4. Seniority date Dec. 2, 1954, retirement effective Oct. 27.

PRIVATEL—John, Dept. 133. Seniority date Sept. 22, 1950, retirement effective Nov. 2.

VERTS—James P., Dept. 14-5. Seniority date Dec. 27, 1950, retirement effective Nov. 25.

Lost & Found

CONVAIR

LOST—Man's Timex wrist watch with leather band on Dec. 16 in Bldg. 2, Plant 1. Finder please call C. T. Nash, ext. 2571, Plant 1.

Discount Offered For All-Star Game

Discount coupons are on hand at GD/Convair employee services for the third annual All-Star AFL football game Jan. 19.

Eastern All-Stars vs. Western All-Stars will kick off at 1:30 p.m. in Balboa Stadium.

Coupons may be exchanged at the All-Star ticket office, Lafayette Hotel until Jan. 17.

They are good for 50 cents off regular $2.50 general admission; 70 cents off $3.50 reserved seats; or $1.10 off $5.50 seats.

Subcontract Awarded On Little Joe Work

A $47,000 subcontract has been awarded by GD/Convair for an electronic logic and control unit for the automatic pilot system of Little Joe II launch vehicle.

CES Electronic Products, Inc., of San Diego will supply the unit. It is designed to gather information from the Little Joe II rate and attitude gyro system and direct the vehicle to react correctly during flight.

Suppliers, Customer Reps Attend Special Value Control Seminar

Amazement at savings disclosed in value analysis workshops was expressed by supplier and customer representatives attending GD/Convair's special value control seminar arranged for them last month.

Supplier delegates, representing 16 companies, came from points as far distant as New Jersey to the Dec. 10-12 session, third in a series for vendors and customers. Air Force, Navy, and Marine Corps installations were represented.

In opening the first day's program, J. H. Famme, division president, emphasized the importance of top management's support for an effective value analysis program.

General impressions of the some 40 persons in attendance were that presentation of basic value vs. cost principles was well-organized and easily understood, said H. P. Williams, GD/Convair value control manager. All asked to be notified whenever a similar seminar is scheduled. Next customer/supplier workshop and lecture session probably will be in the spring, said Williams, and next regular GD/Convair seminar will start this month.

In addition to attending seminar sessions during the three days in San Diego, most of the delegates were present at the San Diego Chapter meeting of Society of American Value Engineers held Dec. 11 in conjunction with the GD/Convair program.

Nearly 100 contracting, purchasing, and program managers from San Diego aerospace industries heard a panel discussion of value engineering incentive clauses in the Armed Services Procurement Regulation and summarization of the new Air Force procurement instruction, "Subcontractor Value Engineering Implementation" and "Value Engineering in Letter Contracts."

Famme also welcomed the audience to the Convair facility. A. S. Freedman of GD/Electronics, chapter president, conducted the meeting.

Convair W-2 Forms In Mail by Mid-Jan.

W-2 forms will be in the mail to GD/Convair people by the middle of this month, said J. L. Terrien, GD/Convair accounting payroll supervisor.

GD/Convair hourly and flat-salaried and Corporate hourly employees should have their forms by the end of January.

General Dynamics NEWS

Published by General Dynamics Corporation, One Rockefeller Plaza, New York 20, N. Y.; with editorial headquarters at 3302 Pacific Highway, San Diego 12, Calif., P.O. Box 1950, telephone 296-6611, ext. 1071. Logan Jenkins, editor-in-chief.

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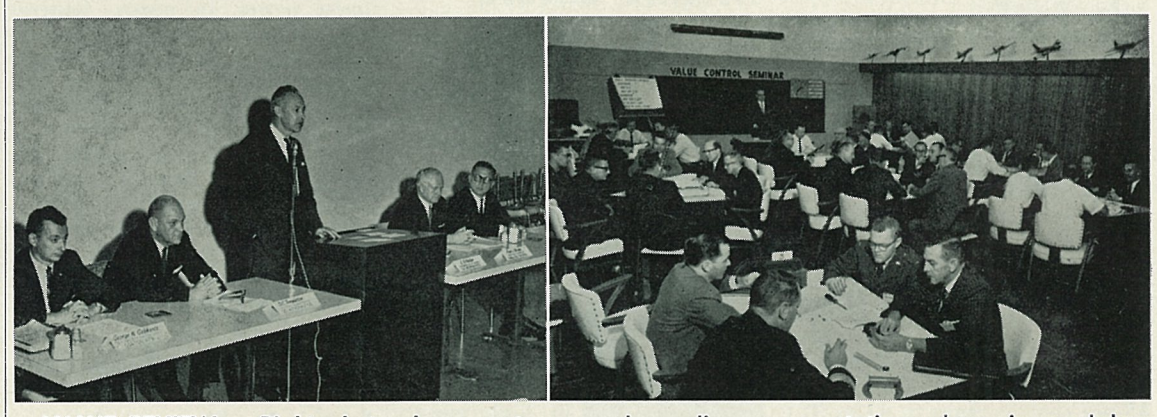
Affiliated editions of General Dynamics NEWS are published in Rochester, N. Y., covering GD/Electronics and Stromberg-Carlson, editorial offices, 100 Carlson Road, HUbbard 2-2200, ext. 2555. Norman Howden, editor; and at Groton, Conn., covering GD/Electric Boat, editorial offices at Groton, HIlltop 5-4321, ext. 300 and 513, Joseph Tracey, editor.



VALUE REVIEW — Right photo shows customer and supplier representatives deep in workshop project at special GD/Convair value control seminar. H. P. Williams, Convair manager of value control, is at lectern. At left, E. D. Heller, GD/Astro manager of value control, moderates panel at SAVE meeting held in conjunction with Convair seminar. Panel members from left are G. W. Gebhardt, value engineering project officer, Norton AFB; D. C. Templeton, Astro contract administrator; F. J. Wright, BUWEPSREP contracts directors; W. H. Parry, Convair general purchasing agent.

General Dynamics Divisions Give Thumbnail Reports on 1963 Activities

(Continued from Page 1)

nine giant tail sections of 134 for the Air Force C-141 have been delivered to Lockheed-Georgia Co.; development is well under way on instrumentation to be installed for space launch tracking over Atlantic Missile Range.

J. H. Famme, division president, looks ahead with optimism as the division's long years of "know-how" are diverted to new and varied products.

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GD/E-Rochester Costs Improve

GD/Electronics-Rochester established a pattern of increasing profitability in its operations for 1963, continuing the improvement trend of the previous year. An effective program to reduce costs and improve operating efficiency was instituted which should aid in meeting the more competitive marketing requirements occasioned by the growing emphasis on fixed price contracting.

R. A. Wilson, GD/E-Rochester president

Several outstanding developments were made during the year to answer such problems as radio interference reduction, microminiature packaging techniques, and new circuit arrangements which improved the customer acceptance of products.

Major production contracts for single sideband radio communications equipment were received from the Army and the Navy, helping to maintain a steady increase in backlog. The division thus goes into the New Year in a stronger position than it has been in for many years.

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Electric Boat Employment Up

Electric Boat established a new post-war production record during 1963, launching five nuclear submarines, laying keels for five more, and delivering three Polaris submarines to the Navy.

J. W. Jones E-B president

The three delivered were the Lafayette, first of an advanced type of Polaris-firing submarine, and two sister ships, the Alexander Hamilton and the Nathan Hale. The latter was delivered 16 days ahead of schedule.

On June 22 the Groton shipyard launched two submarines simultaneously, marking the first time any yard had done this. The vessels were the Polaris submarine Tecumseh and the attack submarine Flasher.

As it enters 1964 Electric Boat has 15 submarine contracts, 10 Polaris and five attack, and 17,000 employees, the highest employment in division history.

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GD/E-SD Scores New Contracts

GD/Electronics-San Diego goes into 1964 as General Dynamics' newest division.

John Lombardo

During the last year, the western GD electronics operation went through the throes of growing pains as it took over its own administration in all areas, emerging by year's end as a full-fledged General Dynamics division.

Under direction of John L. Lombardo, GD/E-SD forged ahead in development of advanced radar equipment and data processing systems. The year past was highlighted by the successful Navy testing of GD/E's Terrain Following Radar. Work continued on REINS radar assemblies for the A5C Naval attack bomber.

Such unorthodox radar concepts as Aircraft Station Keeper and Short Pulse Radar became reality. Capabilities of GD/E-SD high-speed printers and recorders were increased to new levels in the state of the industry.

Looking to the future, GD/Electronics at SD has stepped farther into outer space as it develops computer display equipment for NASA's Gemini and Apollo control center.

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Quick Recovery Follows Fire

Of all General Dynamics divisions, the year 1963 was probably most trying for Electro Dynamic as a result of a disastrous fire that destroyed the plant at Bayonne, N.J. April 20.

R. B. Carey Jr. Electro Dynamic president

However, despite the catastrophe, the division came back with a rush. Following is a blow by blow account:

June 7: first marine motor shipped six weeks after the fire. (Normal lead time for this type of motor thirty-four weeks.)

June 10: Electro Dynamic employees move into new plant at Avenel, N.J.

July 12: Dynapak high energy rate forming machines transferred from Advanced Products to Electro Dynamic.

Sept. 13: first redesigned 810 series gearless elevator traction machines shipped to Washington, D. C., for use in government office building.

Oct. 11: order received for the two largest horsepower motors to be built by Electro Dynamic in the last 20 years, one for 1,020 hp and another for 1,100 hp.

Nov. 1: air systems blower products transferred from Electric Boat to Electro Dynamic.

Nov. 15: first 50 electronic cooling fans for F-105D fighter bomber shipped from Avenel.

Dec. 12: first Dynapak model 400 completed at Electro Dynamic is undergoing tooling tryout with ultimate customer's dies.

★ ★ ★

GD/FW Releases Specs on F-111

GD/Fort Worth passed several F-111 milestones in 1963: release of most specifications to contractors; early definition of work program and control of costs; inspection of mock-up; and completion of first machined parts.

Frank Davis GD/FW president

An estimated 12 per cent of total F-111 engineering man-hours had been expended by mid-summer, and F-111 models had spent over 9,000 hours in wind tunnel tests.

The government announced Australia planned to purchase 24 F-111s.

During the year, a "substantial number" of SAC-based B-58s were updated to latest combat configuration.

Meanwhile, SAC Hustlers continued to assault existing speed records: a B-58 from 305th Bomb Wing at Bunker Hill AFB sped from Tokyo to London in 8 hours, 25 minutes, cutting the record in half.

Construction of Atlas booster sections and Centaur fairings were among the many "space" projects continued during the year.

In keeping with the company's hard policy of getting most product for its defense dollar, GD/FW graduated the 1,000th person from a value engineering seminar.

★ ★ ★

Liquid Carbonic Capacity Rises

Liquid Carbonic Division celebrated its 75th anniversary during 1963, recognizing its founding Nov. 13, 1888, as the Liquid Carbonic Acid Manufacturing Co. in Terre Haute, Ind. Today the division has facilities in 137 cities, with employment of about 1,800. John A. Edwards is division president.

John Edwards

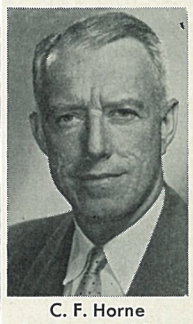
Liquid Carbonic's most outstanding accomplishment during the past year was record-setting progress achieved by affiliates in Central and South America. An increase of 39 per cent in production capacity of carbon dioxide by these Latin American plants marked the highest point since Liquid Carbonic made its first South American investment in 1930.

New Liquid Carbonic production facilities include an addition in Buenos Aires, doubling capacity, making the Argentine plant South America's largest CO_2 producer. At Lima a 100 per cent increase in CO_2 and 40 per cent increase in oxygen capacity was accomplished. A new oxygen plant will go into operation early this year in Cochabamba, Bolivia; a new addition to the CO_2 plant in Santiago will boost capacity of the Chilean affiliate by 200 per cent; in Mexico a major CO_2 plant was opened in August and currently under construction there is the largest liquid oxygen plant to be built so far in Latin America.

★ ★ ★

Pomona Adds Fleet Support

Uninterrupted production of Advanced Terrier and Tartar missiles for the U. S. Navy and development of Redeye and Mauler weapon systems for the U. S. Army continued at General Dynamics/Pomona during 1963 with major announced contracts totaling more than $108 million.



C. F. Horne Pomona president

Support efforts were stressed during the year for the rapidly expanding missile fleet. Four Tartar and six Terrier warships were added during 1963, bringing the total to 47. The first foreign ship with Terrier (Italy's Giuseppe Garibaldi) and the first with Tartar (France's Depetit Thouars) visited the U. S.

The first guided flight of the Mauler missile was achieved at White Sands Missile Range in August, and Redeye successfully met test requirements.

Approximately 70,000 sq. ft. of additional floor space was provided for expanding engineering research and development during 1963.

Emphasis continued heavy on cost reduction with 169 key company and Defense Department personnel receiving value engineering training in six seminars. Product quality improved through installation of new quality audit systems, new repetitive testing and reliability programs and production facility improvement.

★ ★ ★

Demand Jumps For S-C Product

Stromberg-Carlson during 1963 achieved several major advances in the field of electronic switching and enters the New Year with the demand for electronic register-senders more than double that expected. This new product transforms a step-by-step telephone office into a partial common control office for greater flexibility and increased trunking capacity.

John Voss S-C president

During the year the division established its coordinated electronic manufacturing facility and placed in full circuit card assembly area. The division's new plating department increased production capability more than 25 per cent.

Transmission equipment received considerable emphasis during this same period, with the division completing one of its largest complete commercial communications systems programs for the Gopher State Telephone Co., in Minnesota. It totaled more than $2-million and utilized CM multiplexing equipment. Meanwhile, new 240-channel multiplex equipment found a strong market, especially in the industrial field.

The new three-line telephone was introduced during the summer to round out the Stromberg-Carlson instrument line. Continuing sales of XY switchboards demonstrated that there still is a substantial market in the independent telephone industry.

SNOWED UNDER — John Warner and Lois Moffett (both Astro Dept. 954-2) stack copies of Centaur cost estimates, each containing 20,000 pages. This was initial run under ACES (automatic computation of estimates) new Astro computerized cost proposal estimating system. Imagine turning out this volume via desk calculators and typewriters, the method used before ACES!

Computers Churn Out Astro Cost Estimates

Next month General Dynamics/Astronautics begins using a new computerized cost proposal estimating system, the first within General Dynamics Corporation.

It is called ACES (automatic computation of estimates).

From an initial limited use on major proposals, ACES is to be expanded for division-wide application on major projects and programs by the end of 1964.

H. A. Nelson, Astro's manager of estimating, calls ACES "the most sophisticated, accurate and rapid system for processing estimates with high-speed electronic data processing equipment and technology."

Nelson points out that ACES provides for standardization (one form for all proposals) and uniformity of estimate input and resulting cost proposal output, reduces manual summarization and transmittal typing in line departments, projects and division estimating, affords discrete estimates of task, better estimate control, more timely evaluation and analysis and greater flexibility for estimate recycle.

Under development for almost a year, ACES is Astro's answer to the growing demand of customers, present and future, for increased detail in cost proposals and estimates.

And cost estimates are the heart of every proposal.

They must spell out in detail the exact cost of every step to be taken in filling a contract. There may be separate estimates for the 50 to 60 cost elements on each of several thousand tasks involved. They could require estimates for as many as 60 months for each of 200 Astro departments (in ACES each four-digit departmental designation is considered a department). Each individual estimate, in turn, must be multiplied by various rates and factors, added to other factors for analytical purposes, summarized and typed.

(If all estimating possibilities were fulfilled, the number of separate estimate identifications could exceed 57 trillion!)

Astronautics, like other major industries, has performed the bulk of this work manually through desk calculators and typewriters in the past.

High-speed computers, through the use of master tapes and stored data, can reduce work previously requiring weeks to accomplish to a matter of minutes and hours. ACES provides a reproduction output of 500 pages per hour with the information summarized, checked, typed and error free.

Division estimating began an extensive study of the feasibility of what was to become ACES in March, 1963. By June system requirements were established and limited funding made available. Division systems (Dept. 170) and data processing (Dept. 101) provided required system and programming assists.

In June an unscheduled boost to the development occurred. Centaur project encountered urgent requirements for highly detailed estimates on a contract in conjunction with Centaur estimating. A less complex version of ACES was improvised and programmed to help meet restricted time schedules.

On Oct. 25 preliminary test runs were made. Minor improvements followed and on Nov. 22 Centaur estimating provided required input data. The following day an IBM 7074 computer and 1401 high-speed printer went to work on the proposal. They ran estimate data in the form of 200,000 significant bits of information through 5 million calculations, automatically checked them for error and printed them in final customer format.

Each single copy of the estimate contained 20,000 pages!

BIG BLAST — Exhaust from Convair 990 jetliner engine (at right) duplicates wind tunnel conditions as it is turned on insulation test specimens proposed for Atlas-Centaur section. A. E. Jones of GD/Convair 6-31 tilts panel so that Harry Ruscigno of GD/Astro Dept. 961-2 can see how it withstood big wind.

Astro and Convair Teams Use 990A Jet for Missile Tests

Exhaust from a Convair 990A jet engine was used to duplicate missile flight conditions as it was turned full-blast on test specimens in a recent GD/Astronautics program.

Astro and Convair engineers and technicians joined forces to save the company considerable money and still get accurate test data by substituting a 990 jet engine for a wind tunnel. This ingenious method of producing maximum temperature and air flow was used during checkouts of different types of thermal protection systems proposed for the Atlas-Centaur.

Purpose was to determine which would prove the most effective, lightweight, low cost type of insulation to go on portions of the aluminum adapter section which connects Atlas to Centaur.

"We were able to test a large number of panels and more systems at a fraction of the cost of wind tunnel testing, since the nearest facility which can provide the conditions we needed is on the East Coast," said Harry Ruscigno of Astro Dept. 961-2, who coordinated the test program.

Analysis of insulation materials for the Atlas-Centaur inner stage adapter is under direction of Astro's vehicle insulation structures department, supervised by George Dawson.

Engineers coordinated with Convair field operations so that testing could be carried on at the same time runs were made for 990 engine checkouts.

"This close scheduling allowed two operations to be carried on at once," Ruscigno said, "and gave us plenty of time for thorough checks of each specimen." A complete structural dynamic test took just 45 seconds.

GD/Convair thermodynamics lab engineers, under R. F. Holmes, assisted with data acquisition and Dept. 6-31 lab mechanics helped with test setups to make the program a complete cooperative effort between the sister divisions.

Bull Elk Wins Hunting Prize

Blas Vargas' bull elk, shot on a hunting trip to Idaho this season, won him top prize in the annual Big Game Contest sponsored by CRA-ARA Gun Club.

The Astro man's name was drawn for the outboard motor at the Dec. 10 drawing which was attended by at least 175 interested members and guests, said CRA Commissioner Jack Swank of GD/Electronics.

Second prize, a tape recorder, went to John George, also of Astro. His entry was a four-point buck deer, dropped in Utah.

William Shoemaker, another Astro winner, got the .22-cal. pistol. He was eligible by right of his doe, also downed in Utah.

Other prizes went to: John Roth of Convair, air mattress; Pat Jungemann, wife of W. C. Jungemann of Astro, a thermovest; T. H. Chadwick of Astro, pair of shooting glasses; George Bell of Convair, spotlight; H. D. Musick of GD/Electronics, hunting knife; Al Wigers of Astro, two prizes—hatchet and deer bag and deer lure; W. J. Durflinger of Convair, traveling john; G. R. Mayfield of Convair and Robert Kinder of Astro, deer bags.

There were 130 entries this year. Naomi Adams of GD/Electronics drew winning cards.

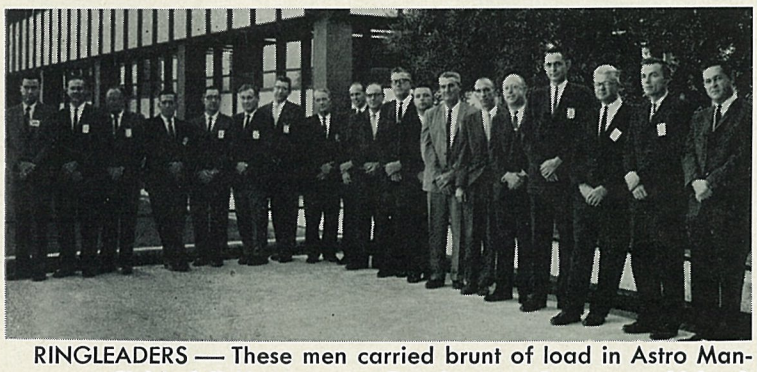
Most Improved Shooter of the Year trophy, a sterling silver ice bucket, went to Art Berry of Lemon Grove. Berry received twice as many votes as his nearest competitor in the open balloting. He has been an associate member of the Gun Club less than a year and has progressed so much in his marksmanship ability that he scored 100-straight in a recent trapshoot.

Guest speakers at the Dec. 10 meeting were Rolla Williams, SD Union sports writer, and John Roumasset, head of the local Department of Fish and Game office. Roy Webb showed movies of big game hunting in Western states.

Joint Camera Club Will Convene Jan. 5

The joint ARA-CRA Camera Club will hold its first meeting of 1964 at 7:30 p.m., Jan. 5 in Photo Arts Bldg., Balboa Park.

Instruction in "painting" large and small areas with light during "open flash" picture taking will be featured. Participants have been asked to bring camera, film and tripod.



RINGLEADERS — These men carried brunt of load in Astro Management Club's fall Management Development Program, which offered three separate courses. Some 400 attended, bringing four-year total to 1,100.

Club to Shoot At Range Sun.

Winners of the December regular CRA-ARA Gun Club shoot were chosen on a "pure luck" basis, getting their names in the hat when they broke the white birds thrown out in each squad.

Al Wigers won 25 lbs. of shot; Reese Jones and C. Miller, each a leather four-box shell holder; Don Neidermeyer and Bill Betteridge, each a leather skeet shell holder; Don Clark, a box of .200 wads.

Next club shoot is scheduled for this coming Sunday (Jan. 5) at Gillespie Field Range.

Also, scheduling is under way for registered trap and skeet shoots sponsored by the Gun Club this year. Commissioner Jack Swank says that there probably will be seven registered ATA shoots, and four or more NSSA events.

Associate memberships for friends of GD people now are on sale at $10 a year. These memberships entitle holders to the same privileges as GD club members, reduction in rates for all scheduled events and a chance at monthly prizes.

GD/Astro Wives Foil Winners

Forty-one fencing devotees assembled in ARA Clubhouse last month for an invitational foil tournament sponsored by San Diego Fencers, local club to which several General Dynamics folk belong.

Nine clubs from throughout Southern California participated, with the host group winning lion's share of honors. A total of 189 bouts were fenced during the one-day affair, and SD Fencers' members placed first and second for men.

In second place for women was Barbara Hurley, wife of ARA Commissioner Mike Hurley, and Inez Kirby, GD/Astro Dept. 158-1, placed third.

Named Fencer-of-the-Day was Terry LaMonte of a Hawthorne club, who with but two years' participation in the sport, yielded only four touches in the eight-bout women's finals.

Annual Tijuana Tour Reset for Jan. 25

General Dynamics people have a second chance to sign for the annual tour of Tijuana highlights with the rescheduling of the trip for Jan. 25.

Fifty GD persons had their plans changed when the trip to the nearby Mexican city, originally set for Nov. 23, was called off at the closing of the border that weekend.

James Hardison of GD/Convair Dept. 15 said that arrangements have now been made for the sightseeing tour the last Saturday of this month. Deadline for signing is Jan. 17 by calling Hardison at his home phone, 276-5805.

Tourists will meet at Balboa Park's Conference Bldg. at 1 p.m., leave their cars there, and board a San Diego Transit bus to the border. There they will transfer to a chartered bus for a tour of the city.

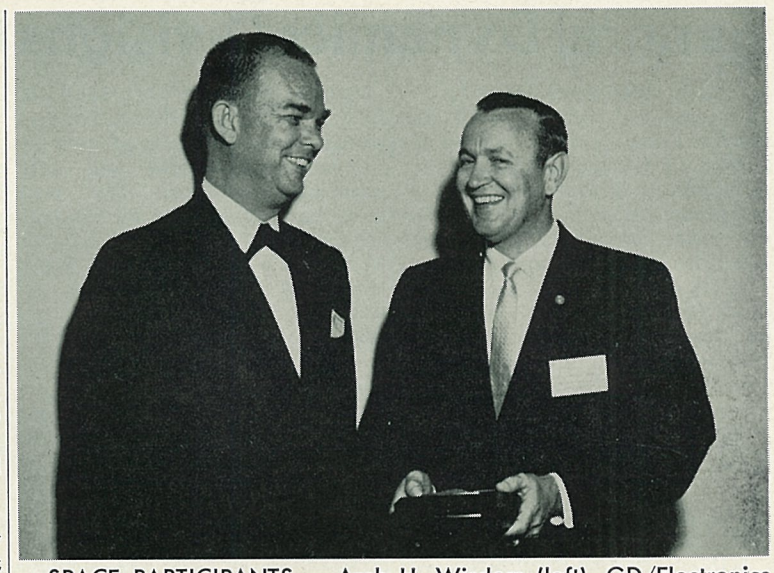
Dinner will be served at the Tijuana Country Club. Arrival back in San Diego is set for 1 a.m.

Cost of the 12-hour tour, including transportation, admission charges, and dinner, is $11 each.

Seven Families Win Garden Club Birds

Seven General Dynamics families dined on turkey as a result of the joint ARA-CRA Garden Club's holiday party last month.

Receiving their birds as door and contest prizes were Jerome Galiley, GD/Electronics Dept. 35-00, GD/Astro's Floy Allen and Ona Mae Carroll, Dept. 141-2, C. E. Walker, Dept. 401-3, B. W. Kurch, Dept. 952-1, Carolyn J. Buman, Dept. 512-1 and Ann Raisanen, Dept. 191-0.



SPACE PARTICIPANTS — Arch H. Wisdom (left), GD/Electronics SD manager research and engineering-data products, and Christopher C. Kraft Jr., NASA's Project Mercury flight director, with John J. Montgomery plaques given by National Society of Aerospace Professionals and SD Aerospace Museum to participants in Project Mercury, named "program of year." GD/E designed Operations Center.

More Peruvian Crews Trained

A second group of Aerolineas Peruanas flight men concluded a three-week familiarization course on the Convair 990A jetliner at the San Diego plant last month, Dec. 2-20.

The Peruvian airline now is operating a 990A over its routes from Lima to Buenos Aires, Mexico City, Miami.

Initial production flight ground course was given nine Aerolineas Peruanas pilots and flight engineers in November before delivery of the plane. They, together with three GD/Convair crews, are based at the Miami operations headquarters as the advanced version jet transport is transitioned into passenger service.

Those who took the most recent 75-hour course under direction of V. V. Thomason and John Van Houten, Convair production flight instructors, were:

Grant Spillman, chief of operations and flight captain; R. R. Clary, E. C. Brice, flight captains; Ralph Abravaya, Lee Marsh, Fernando de las Casas, Harold Daniels, Guido Fernandez, pilots; Ed Wilson, Barney Wozneski, Bill Rogers, flight engineers.

Promptness in Filing Disability Requested

General Dynamics people are urged to file claims for weekly disability payments as soon as possible after they start sick leave.

All GD people working within the state of California must file state claims for disability payments during off-job illnesses or injuries directly with the California State Disability Office. This ruling has been in effect since May, 1962.

State forms may be obtained through employee services outlets, or the local State Disability Office.

Group insurance claims should be made as usual through the different divisions' employee services offices.

GD/E MAN TO CHAIR DUCKS UNLIMITED

Payne B. Johnson, manager of communication for GD/Electronics at San Diego, has been named chairman of the 1964 San Diego County Ducks Unlimited steering committee. He will coordinate all activities for the annual fund-raising dinner.

Another GD man, George W. Cowan, GD/Astro purchasing agent, will serve as secretary.

Salvage Schedule Given For Month

Salvage schedule at GD/Convair and GD/Astro yards for the next four weeks is:

GD/Convair—Jan. 4, 18.

GD/Astro—Jan. 11, 25.

Electronic Show Papers Solicited

General Dynamics people who wish their technical papers evaluated for the 1964 Western Electronic Show and Convention must submit material by April 15.

Papers in all electrical and electronic fields will be considered for the WESCON program, Aug. 25-28, Los Angeles.

Authors must send three copies of a 100 to 200 word abstract, including title of paper, name, company affiliation, and address of the author; three copies of a 500 to 1,000 word summary of the paper; indication of technical field into which the paper falls.

Address material to: Dr. R. R. Bennett, 1964 WESCON technical program chairman, Suite 1920, 3600 Wilshire Blvd., Los Angeles.

GD Ice Skating Club Arranges Discount

General Dynamics Ice Skating Club has arranged for discount tickets to a professional ice hockey game (Los Angeles Blades vs. Vancouver Canucks) which are now available at employee services outlets.

Reserved seats in the $3.50 loge section are sold to GD/Astro, GD/Convair and GD/E folk for $3.25. The contest is scheduled in Los Angeles Sports Arena on Jan. 25.

Reservation deadline is Jan. 17. If interest warrants, round-trip chartered bus service may be arranged for an additional fee of about $3.50 per person.

More information is available from Barbara Gilliland, GD/Astro ext. 4041.

Gardeners to Hear Tips on Rose Pruning

CRA and ARA gardeners will hear how to prune and take care of their roses at their next joint meeting Wednesday (Jan. 8) in the Floral Association Bldg., Balboa Park, 7:30 p.m.

Two rose experts from the San Diego County Rose Society, Charles Lewis and James Kirk, will be present to explain rose nurture and answer questions. New 1964 All-America roses which will be on the market this year will be described.

ARA Commissioner Everett Henderson will outline a new discount offer to members which allows them to buy roses at 25 per cent discount.

M. C. Jay to Advise In Center Project

M. C. Jay of GD/Astronautics welding technology center (Dept. 290) has been appointed an industrial consultant to assist during construction of NASA's Manned Spacecraft Center at Houston, Texas.

He is one of two consultants from industry aiding the Army Corps of Engineers at the new facility.

ES Payments Of $800 Made

Over $800 in Employee Suggestion awards was handed out to 19 GD/Convair men last month so they would have extra spending money in time for Christmas.

Vic Janusz, in charge of the cost reduction program, said that a special push was made to process as many pending ESs as possible so that awards could be made before the holidays.

Amounts ranged all the way from $166.50 to $6.20. Largest payment went to R. F. Murphy of Dept. 102 for his method of identification of C-141 detail parts in Dept. 102 and other departments doing stencil identification. It will save the company 580 manhours and $1,665 in one year. Next highest single payment of $76.40 went to J. Valezquez of Dept. 171.

Major share of the suggestions, which earned a total of $843.96 in the first two weeks of December, dealt with the C-141 program. Others involved spares production and Little Joe II.

Another large sum, around $560, was handed out to a dozen more ES winners this week.

Electronics Wives Will Lunch Jan. 9

GD/Electronics Wives' Club will hold its regular monthly meeting a week from today (Jan. 9) at Kings Inn in Mission Valley.

Reservations must be in by next Monday to the hostesses, Mrs. C. J. Barber, phone 281-6848, or Mrs. R. R. Apgar, 582-7393.

Social hour starts at noon and luncheon at 1 p.m. with a special program to be presented by Richard King Salon. Wigs will be subject of a talk and demonstration.

Price is $2.50, including tax and tip. Guests are welcome.

Practice of Posting ES Awards Dropped

Notices of Employee Suggestion awards no longer will be posted on suggestion boxes throughout GD/Convair.

Copies of the award winners list will be sent instead to department heads whose people receive awards. Also, complete lists of ES and CIP awards will continue to be published in the **General Dynamics NEWS** biweekly.

ES and CIP forms are available in boxes throughout Plant 1, Rose Canyon, and at the seaplane ramp. They should be mailed in-plant to the Cost Reduction Section, Plant 1, Zone 25-10. Information on the program may be obtained by calling ext. 1640.

Con-Trib Clubs Give To Salvation Army

Convair and Electronics people, through their Con-Trib-Club committees, helped make Christmas a little happier for some San Diego families.

Convair Con-Trib committee followed its usual Yuletide tradition of voting $500 to the Salvation Army, while Electronics Con-Trib committee member, William Lynt, made a trip to the headquarters to hand over $200 on behalf of GD/E employees.

CRA RADIO CLUB CANCELS MEETING

There will be no meeting for CRA Radio Club members tonight (Jan. 2). Thursday night meetings were cancelled during Christmas and New Year's weeks, said CRA Commissioner Jim Lack. Regular schedule will resume next Thursday night (Jan. 9), 8 p.m., club's Harbor Drive headquarters.

TABLE TENNIS MEET PROPOSED

San Diego Industrial Recreation Council will sponsor a table tennis tournament early next year, if interest warrants. General Dynamics folk have been invited to contact Ted Wilson, Ryan Aeronautical Co., 296-6681, ext. 1436, tournament coordinator.

Travelers to Head For Desert Jan. 11

Convair travelers will head for the desert on their next outing with the Jan. 11-12 weekend trip of CRA Roadrunners set for the Spa, near Salton Sea.

Ed Wawrzynski, wagonmaster, advises trailerites to bring water, and wood for the Saturday night campfire. Joe Sopko is assisting.

Fifteen units traveled to Painted Gorge over the weekend of Dec. 13-15. Usual Saturday night potluck was held, and the Christmas story was subject of Loretta Devin at the Sunday morning devotionals.

Next club meeting will be Jan. 16 at Gillespie Field Clubhouse.

Lapidary Workshop To Reopen Next Wed.

CRA Rockhounds lapidary workshop will open again next Wednesday (Jan. 8) after a couple weeks' holiday vacation.

Instruction will be given from 7-9 p.m. in polishing and cutting of stones, said Commissioner Dan Whorton. The workshop is located in the renovated quonset hut at Gillespie Field.

Regular meeting of the Rockhound group will be the next night (Jan. 9) in the Gillespie Field Clubhouse at 7:30 p.m.

Score of GD Girls Turn Out For Golf

Jerri Cooper of Convair was low net scorer in GD Women's Golf Club's Dec. 14 tourney which saw 18 GD/E and Convair girls start off in the chilly morning hours at Mission Bay Golf Course.

Joy Ward and Peggy Tracy, both of GD/Electronics, tied for runner-up.

Next monthly match will be Jan. 11 at Singing Hills. New contestants may get starting times by calling Mary Ransom, GD/E Plant 1, ext. 2407, or Stevie Ericson, GD/E ext. 2296, by Jan. 6.

Regular Bridge Club Sessions to Resume

CRA Bridge Club players will resume their regular sessions next Wednesday (Jan. 8) at 7:30 p.m. in Convair executive dining room of the Pacific Hwy. cafeteria.

Play was cancelled throughout the two holiday weeks.

Master Points night has been changed from the fourth to third Wednesday of the month, said Frank Westphal, club president. Jan. 15 is date of this month's Master Points session, open to General Dynamics players only.

Stamp Enthusiasts Will Meet Jan. 16

Stamp enthusiasts at Convair and Electronics will meet Jan. 16 this month, instead of the usual first Thursday date, announced CRA Commissioner Jack Benedict.

Meeting, which would have been tonight, was postponed because of the holidays. Regular first Thursday night schedule will resume in February.

An auction of high value foreign stamps will highlight the January meet.

Tax Lecture Series To Begin Next Week

A special income tax lecture series is scheduled for GD/Convair Management Club members with registration open now.

The four-week instruction on how to prepare federal and state income tax reports will begin at Plant 1 next week.

G. V. Baughman, tax consultant and former Convair accountant, will teach the course and review the latest tax revisions. Sessions will be held Wednesday evenings after work, 5-7 p.m., in Bldg. 14, Classroom 5.

Management Club members may register with James Hardison, Plant 1, ext. 2814.

CRA Calendar

(Convair Recreation Association has some 40 activities in operation for Convair and Electronics people. For information call CRA headquarters, ext. 1245, Plant 1.)

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AEROMODELERS — Flying sessions Saturday and Sunday mornings, 8 a.m. to 1 p.m., Clairemont Mesa Flying Site.

ARCHERY—Next regular club shoot Jan. 12, Balboa Park Field Range.

BASEBALL — Convair Industrial League team vs. Hazard Block at University Heights, Jan. 12, 1 p.m.

BASKETBALL — Plant "slow break" league games Tuesday nights in Muni Gym, Balboa Park.

BRIDGE CLUB — Weekly Wednesday sessions resume Jan. 8, 7:30 p.m., Convair executive dining room, Pacific Hwy. Master points night Jan. 15.

CAMERA CLUB — CRA-ARA meeting Jan. 5, 7:30 p.m., Photo Arts Bldg., Balboa Park.

COIN CLUB—Meeting Jan. 16, 7:30 p.m., Convair cafeteria main dining room, Pacific Hwy.

FENCING—Workouts and instruction each Friday, 7-10 p.m., YWCA, 10th & C Sts.

GARDEN CLUB—Joint CRA-ARA meeting Jan. 8, 7:30 p.m., Floral Assoc. Bldg., Balboa Park.

GLIDER CLUB—Meeting second Saturday of month (Jan. 11), 8 p.m., Golden Hills Playground Recreation Hall, 28th & A Sts.

GOLF — Entries open today (Jan. 2) until Jan. 6 for CRA tourney, Jan. 11-12, Carlton Oaks. Call ext. 1705, Plant 1.

GUN CLUB—Club shoot Jan. 5; regular meeting Jan. 14, Gillespie Field.

ICE SKATING—Thursday ice skating sessions at Mission Valley Ice Plaza, 6:30-8 p.m.

MOVIES—Reduced prices for General Dynamics people at State Theater, Euclid and El Cajon Blvd. General admission: adults, 75c; children, 25c.

PISTOL CLUB—Regular shoot, 9:15 a.m., Jan. 12, San Diego Police Pistol Range, Federal Blvd. and Home Ave.

RADIO CLUB—Next meeting Jan. 9, 8 p.m., Harbor Drive club headquarters.

RIDING CLUB — No meeting scheduled in January.

ROADRUNNERS — Weekend outing Jan. 11-12, Salton Sea. Meeting Jan. 16, Gillespie Field Clubhouse.

ROCKHOUNDS — Lapidary Shop at Gillespie Field reopens Jan. 8, 7-9 p.m. Regular meeting Jan. 9, 7:30 p.m., Gillespie Field Clubhouse.

SPORTS CAR CLUB — Meeting Jan. 8, 7:30 p.m., Convair cafeteria main dining room, Pacific Hwy.

STAMP CLUB—Meeting Jan. 16, 7:30 p.m., Convair executive dining room.

WATER SKI CLUB — Skiing weekends on phone-call basis. Call Gene Sevigny, ext. 2701; Jack Loos, ext. 2456, both Plant 1.

Gerry Cox Shoots 77, Collects CRA Ham

Hams went to six winners in three flights at the monthly CRA golf tourney at Bonita Valley course the weekend of Dec. 14-15.

Gerry Cox of Dept. 101, with a 77, was first low gross scorer in the 0-14 handicap flight. Jerry Swarts (Dept. 48) stroked 71 for first low net.

In the 15-21 flight Bob North of Dept. 6 had first low gross, 84; and Terry Kell of Dept. 23 scored 72 for first low net.

In the 22-and-over flight Charles Stafford of Dept. 400 had 93 for first low gross and Frank Garrison (Dept. 115), 65 for first low net.

Sports & Recreation

GD/E Material Team Unbeaten

GD/E Material is the only undefeated team in "slow break" basketball tourney at the end of three weeks of play in the second half.

The GD/E hoopsters rushed over Hi-Lows Dec. 10 to bury them under a 53-19 score. Dec. 17 they pulled the same snow job on GD/E Chargers to down them 44-17. They had already taken the first game from Data Processing.

Other Dec. 10 results saw 310 Pubs over GD/E Product Service, 18-15; GD/E Chargers winning from Data Processing, 36-17.

On Dec. 17 GD/E Product Service beat Data Processing, 32-17, and 310 Pubs defeated Hi-Lows, 33-13.

Games will resume next Tuesday (Jan. 7) following the holiday recess. Hi-Lows will meet GD/E Chargers at 6:50 p.m. in Balboa Park's Muni Gym. 310 Pubs will play Data Processing at 7:55, and GD/E Material will be matched with GD/E Product Service in the 9 o'clock game.

Halfacre Dominates CRA Pistol Shooting

Jim Halfacre (Dept. 140) was double winner in CRA Pistol Club's pre-Christmas competition Dec. 8.

With Commissioner Joe Williamson out of the running (he was unable to attend), Halfacre had things his own way. He shot a 287 to win first in the .22-cal Police Course and 259 to top the .45-cal. Short National.

Ralph Picard of Electronics-SD and Warren Walker (Dept. 6) were runners-up in both events. Picard was second in the Police Course contest with a 278. Walker was just a point behind to stand third.

However, they traded standings in the Short National. Walker's 227 was good for second. Picard had a 207.

This was the only CRA shoot scheduled during December because of the year-end holidays. Next club competition is set for Sunday (Jan. 12).

Convair Ball Team Wins Two, Drops One

Convair blanked National City 6-0 in the Industrial Baseball League on Dec. 15 but dropped a close one to Shrock Construction, 8-7, the week before. It had won its first game of the last round from Oceanside.

The division's club was to play Pacific Surplus last Sunday. It draws a bye this week and plays Hazard Block, Jan. 12, 1 p.m., at University Heights.

Golfers File Entries For Jan. 6 Sweeps

Entries open today (Jan. 2) for this month's CRA golf tourney set for Jan. 11 and 12 at Carlton Oaks Country Club.

Convair and Electronics golfers have until next Monday (Jan. 6) to get their starting times, said Commissioner Ken Wulfemeyer.

Call ext. 1705, Plant 1.

GD/E, Convair Golfers Shoot For Silver $s

Seventy-six Convair and Electronics golfers will tee off Saturday (Jan. 4) in a joint Management Club tourney at Bonita Valley Country Club.

Electronics has entered eight foursomes. Eleven foursomes will represent Convair. The clubs are offering silver dollars for lucky shots on five holes.

Handicaps are not required. Jerry Swartz and Terry Kell of Convair and Ellsworth Henderson of Electronics are committeemen.

GD/E Golfers Earn Titles

There were winners all around Dec. 15 after scores were turned in by 60 GD/Electronics linksmen in a race to decide two GD/E Men's Golf Club titles as well as winners of the monthly shoot itself.

Ellsworth Henderson nosed out Fred Swope and club prexy, Ernie Paul, by one stroke as low scorer in the last three club tourneys (54-holes) to earn the privilege of representing Electronics division and the club in the San Diego Pro-Am Tournament, Jan. 8.

Bob Crabb was named club champion as best low net player in the last nine tourneys. The field had narrowed to five by the December match over Coronado course. Runner-up, just a stroke behind, was Roger Hayes. Third was Paul. All three receive individual trophies.

Taking home turkeys for low net scores in two flights were:

Flight A (0-17 handicap)—Bob McStay, 69; Bob Crabb, 71; Ernie Paul, 71; Ellsworth Henderson, Roger Hayes, Gerry Swisher, 72s.

Flight B (18 and over)—Warren Flournoy, 68; Ray Sandoval, 68; Lyle Wood, 71; Rex Brouillard and Bob Merrilees, 76s; Frank Smyer, 78.

Next club tourney will be Jan. 18 at Rancho Bernardo course.

Riding Club Reports Its Largest Turnout

Santa passed out presents to 43 children of Riding Club members at the CRA group's annual Christmas party Dec. 14.

Ladies of the club served a buffet supper to 103 people, largest turnout the club has ever had, said Commissioner Tommy Thomason.

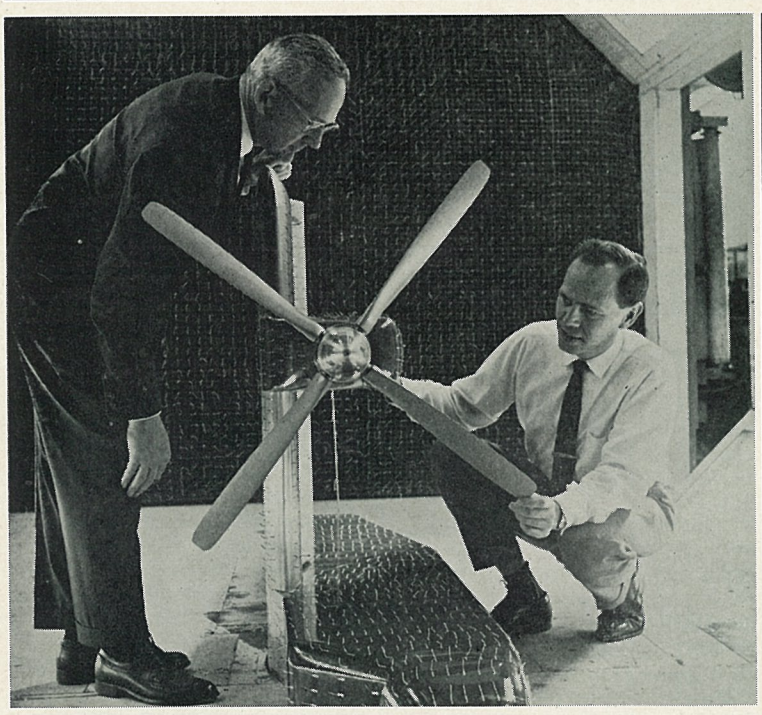
Following Santa Claus' visit, the Riding Club Combo, directed by Turner Albright of Dept. 91, furnished music for dancing. Miss June Donley, guest at the affair and professional singer, led the crowd in Christmas carols.

Another pre-Christmas event was a trail ride to Descanso on Dec. 23. Fourteen members, on their own mounts, made the ride from the Willows near Alpine. Joe Pena, ARA Riding Club commissioner, was issued a special invitation to join the ride with any of the Astro riders who cared to attend.

CRA Golf Schedule for 1964

(It is suggested that GD/Convair and GD/Electronics golfers clip the following tournament schedule for future reference.)

Jan. 11-12—Carlton Oaks Country Club.
Feb. 8-9—Coronado Golf Course.
March 14-15—Carlton Oaks Country Club.
April 18-19—Bonita Valley Country Club.
May—Reserved for Industrial Recreation tournament.
June 13-14—Carlton Oaks Country Club.
July 11-12—Bonita Valley Country Club.
Aug. 15-16—Coronado Golf Course.
September—To be scheduled.
Oct. 17, 24, 31—Plant Championship, Carlton Oaks.
Nov. 21-22—Coronado Golf Course.
Dec. 12-13—Bonita Valley Country Club.



CL-84 TEST MODEL — John Struthers (left), in charge of GD/Convair low speed wind tunnel, and O. E. Michaelsen, CL-84 aerodynamics engineer for Canadair Limited, examine half model of new V/STOL aircraft during wind tunnel testing at GD/Convair.

Canadair V/STOL Model Tested in Coast Tunnel

Wind tunnel testing on models of Canadair Limited's new twin-engine, vertical or short-run takeoff and landing (V/STOL) aircraft was completed at General Dynamics/Convair in mid-December.

O. E. Michaelsen of Canadair, aerodynamics group leader for the CL-84 as the new plane is designated, said that last month's evaluation in GD/Convair's low speed wind tunnel firmed design for the V/STOL aircraft which does everything a helicopter can do at twice the speed.

The CL-84 program is being financed jointly by Canadair (General Dynamics subsidiary) and the Canadian government. Two prototype aircraft will be built with first flight scheduled for mid-1965. Another year of flight testing will be necessary, say Canadair officials, to develop the plane to "sales demonstrator" status.

The plane is designed for both transport and tactical support missions, with a wide variety of roles seen for its use. As a military plane, the CL-84 could be put to work for helicopter or destroyer escort purposes, reconnaissanse and surveillance, tactical support transport, casualty evacuation, search and rescue, aircraft carrier liaison, and communications.

A commercial version would be suitable for city-center to city-center passenger transport.

The CL-84 is a propeller-driven aircraft with high-set tilt-wing and low-set tail. It rotates its wing through a right angle for vertical flight, and employs a combination of partly tilted wing and flap-deflected slipstream for short-run takeoffs to increase the lifting power.

In normal forward flight the CL-84 has a conventional airplane configuration, characterized by its small-span wings and large-diameter propellers. Only the rotor at the tail indicates its V/STOL capability.

For vertical takeoff, the wing —complete with engines and propellers — is swung through a right-angle from the conventional position until it points upward. The aircraft then lifts itself straight off the ground by propeller thrust alone, with additional lift and longitudinal control provided by the tail rotor. Once aloft, the wing swings down again to the normal forward-flight position. Vertical landing is achieved by reversing the sequence.

First testing on this concept in GD/Convair's wind tunnel was in 1959 with Canadair engineers spending about nine months at the San Diego division testing different configurations. They returned during 1963 for further evaluation of versions leading to the current design. Last month's testing of a half-model measured aerodynamic forces and investigated airflow characteristics in V/STOL and forward flight conditions.

Canadair aerodynamics engineers accompanying Michaelsen to the San Diego location were Ross Clark, James Pike, and George Tateishi. Ken Kimber, Canadair engineering group leader, was at GD/Convair to initiate the test program.

Instrument Society Will Meet Jan. 9

General Dynamics members of the Instrument Society of America, San Diego Section, will meet Jan. 9 in the Crystal Room of the U. S. Grant Hotel.

Mary E. Hoskins, supervisor of Eli Whitney Metrology Laboratory, Sheffield Corp., Dayton, Ohio, will talk on "Standards Work-Piece Instrumentation Personnel Environment."

Dinner hour is 7 p.m., program at 8.

For reservations call Dick Barnett, GD/Electronics Plant 2, ext. 23; W. R. Holmes, section president, GD/Convair Plant 1, ext. 2121; or Charles H. Hill, Astro Plant 71, ext. 1322.

"Welcome home, neighbors! Did you have a good desert vacation?"

General Dynamics to Buy Historic Quincy Shipyard

General Dynamics Corporation has agreed to purchase the physical assets of the Fore River Shipyard, located at Quincy, Mass., from Bethlehem Steel Co., Roger Lewis, president, announced last week.

The price was not disclosed.

The Quincy Yard includes building ways, building basins, outfitting piers, a wet basin, shops, office space, and equipment capable of building and overhauling all classes of ships.

"Acquisition of the Quincy Yard," Lewis said, "will supplement the existing facilities of our Electric Boat Division at Groton, Conn., and will provide the Corporation with greater flexibility and capacity for a wider range of marine work."

Operations at the Quincy Yard will be shut down by Bethlehem prior to Electric Boat's commencing operations at the yard. Current employment at Quincy is approximately 2,000.

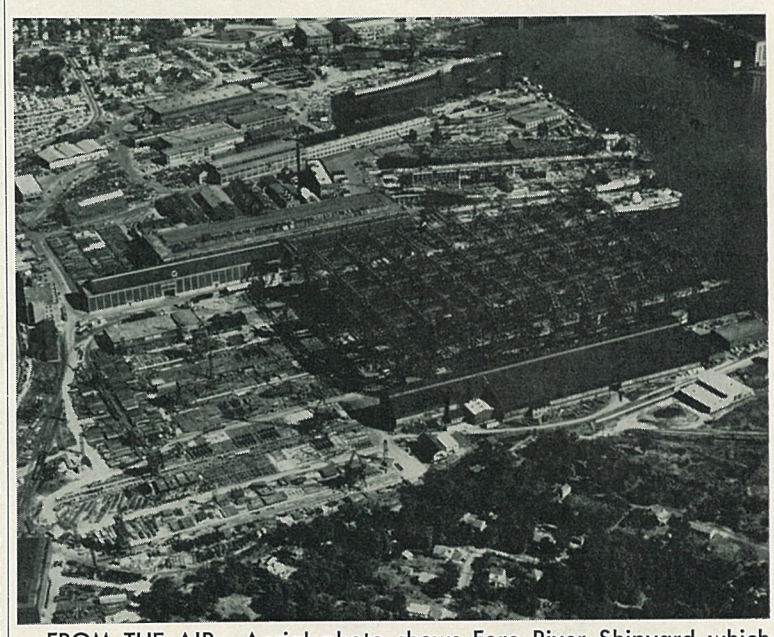
General Dynamics will take over construction of two attack-type nuclear submarines now under contract with Bethlehem. The prototype of these submarines is under construction at Electric Boat.

During its nearly 80 years of operations, the Quincy shipyard has built more than 500 ships. The roster includes the battleship Massachusetts, the famous aircraft carriers of World War II, Lexington, Wasp, Bunker Hill and Hancock, the luxury liners SS Independence and SS Constitution, and a host of heavy and light cruisers, destroyers and oil tankers.

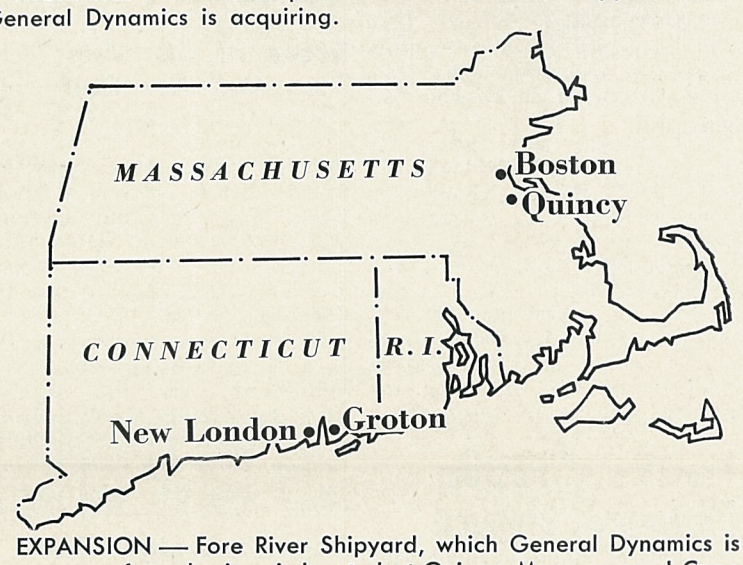
Among the Quincy-built ships now serving with the U. S. Fleet are eight that carry General Dynamics Tartar or Terrier guided missiles. These include the Albany, Columbus, Long Beach, Springfield, Farragut, Luce, MacDonough and most recently the Navy's first nuclear powered guided missile frigate, the Bainbridge, DLG(N)-25.

The Quincy Yard was founded in 1884-1885 as the Fore River Engine Co., by Thomas A. Watson of East Braintree, Mass., who was associated with Alexander Graham Bell in development of the telephone. It was purchased 28 years later by Bethlehem Steel. During World War I the yard built and delivered 36 destroyers in 27 months and five days, while also constructing submarines and merchant ships. During World War II over 100 naval combat vessels were built at Quincy, totaling 750,000 tons.

The shipbuilding basins, ways, shops and other facilities occupy 155 acres in Quincy and Braintree on the western bank of the Fore River.



FROM THE AIR—Aerial photo shows Fore River Shipyard which General Dynamics is acquiring.



EXPANSION — Fore River Shipyard, which General Dynamics is in process of purchasing, is located at Quincy, Mass., around Cape Cod from Electric Boat division at Groton, Conn.

GENERAL DYNAMICS JOINS BELGIAN FIRM TO FORM COMPANY

General Dynamics Corporation this week announced formation of a jointly owned company with Ateliers de Constructions Electriques de Charleroi (ACEC), a leading Belgian electrical engineering firm.

The new company will be known as Etudes Techniques et Constructions Aerospatiales (ETCA) and will have headquarters in Charleroi, Belgium.

ETCA will combine the production and European marketing experience of the Belgian company, and the technological capability in space systems of General Dynamics for participation in the growing European space effort. Activities of the new company will include design and manufacture of satellites and space tracking equipment.

General Dynamics has long been active in the international field through direct sales of aircraft, nuclear reactors, military equipment and other products. The new company, however, represents General Dynamics' first joint undertaking with a European company. ACEC has more than 21,000 employees and annual sales in excess of $130 million.

The board of directors of the new company will be composed of three representatives each from General Dynamics and ACEC. The director general of the new company will be Maurice Desirant, deputy director of ACEC's electronics division.

GD/FW Praised For Outstanding Schedule Keeping in B-58 Mod

Delivery of B-58 No. 71 to SAC last week spelled finish to current Phase II updating and virtually completed Hustler modification work at GD/Fort Worth for the time being.

All told, 183 B-58s have been phased through various modification programs starting late in 1959.

"Of course, most B-58s were phased through several programs," said E. E. Finch, manager of modernization-development departments.

He added: "On this last program, as on all others, our people did an outstanding job of turning out this work on schedule."

Modification work was carried out in four major programs.

In the trainer bomber project, eight test Hustlers were converted to tactical status. (The final TB-58 is now in work and is slated for delivery in April.)

The production conversion program saw 11 flight-test B-58s changed into regular SAC bombers.

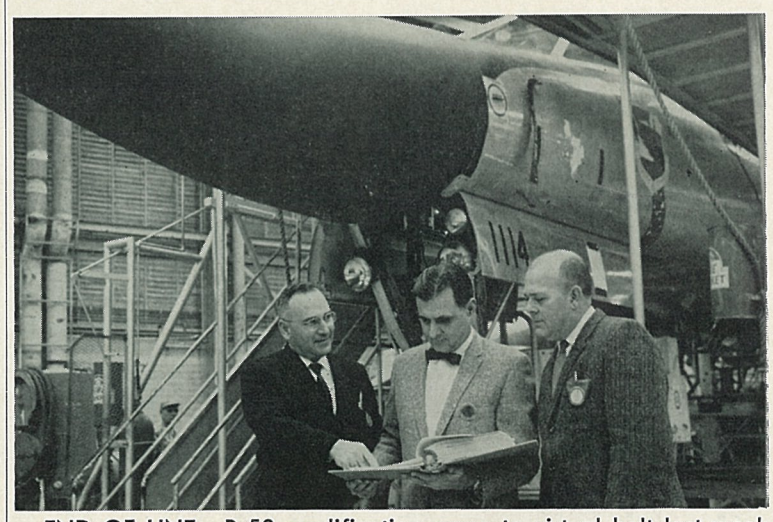
"Flash-up" modification, involving certain electronic changes, included 13 B-58s in Cycle I operations and 38 B-58s in Cycle II.

Supersonic modifications were made on 21 other Hustlers.

The recent modification program was done in two phases.

Fifty-nine B-58s were cycled through Phase I, which consisted mainly of adding multiple-weapons and escape-capsule capabilities.

Phase II involved upgrading maintainability and reliability of communications systems, flight control systems, and electronic countermeasures systems.



END OF LINE—B-58 modification came to virtual halt last week with delivery of No. 71. Making final check are, from left: W. H. Mann, chairman modification task control; Jo Muncy, Dept. 96 general foreman; and W. L. Patrick, quality control.

GD
MAIL EDITION

GENERAL DYNAMICS NEWS

Vol. 17, No. 2 PUBLISHED BY GENERAL DYNAMICS CORPORATION 52 Wednesday, January 15, 1964

GD/FW Task Force Named To 'Value Engineer' F-111

A special five-man task force, headed by E. R. Weiher, is value engineering all F-111 specifications.

"Our aim is to eliminate unnecessary requirements and to meet our contract in the most economical manner," President Frank W. Davis said in appointing Weiher, manager of quality control, to head the force. He will fill the post in addition to his regular duties, reporting to J. T. Cosby, vice president - F-111 program director.

Task force members, with areas of responsibility, are: E. L. Buckley, Dept. 61-3, AGE and support; R. R. Buell, Dept. 263-1, materials, processes, testing and quality assurance; L. E. Erwin, Dept. 262-6, (alternate to Weiher) mechanical subsystems; T. E. Roberson Jr., Dept. 8, production and personnel subsystems; and F. G. St. John, Dept. 62-3, electrical subsystems.

The overall assignment, which started in December, will last 90 days.

"We've already completed the first step, which is identifying and cataloging all specifications," Weiher said. Literally hundreds of specifications are listed under 52 main specifications.

Stage two will involve analyzing various specifications, giving them priority for review, and coordinating as necessary with elements of the F-111 project organization.

Typical of the approach to be taken is the one applied to a specification that 200 hours of testing be required for each of several hundred cadmium-plated parts on the F-111.

"This testing process would be

(Continued on Page 2)

Zero Failures Scored In Landing Mat Trials

General Dynamics/Convair's landing mats, now laid as the main impact area in the Marine Corps landing field at Twentynine Palms, Calif., were subjected to first aircraft landings last month.

C. L. Jackson, SATS systems program manager at GD/Convair, said that "results thus far are excellent."

First military plane to try out the GD/Convair developed and fabricated mats was a KC-130F from El Toro Marine Base, piloted by Capt. George Psaros. Gross landing weight of the craft was 100,000 lbs.

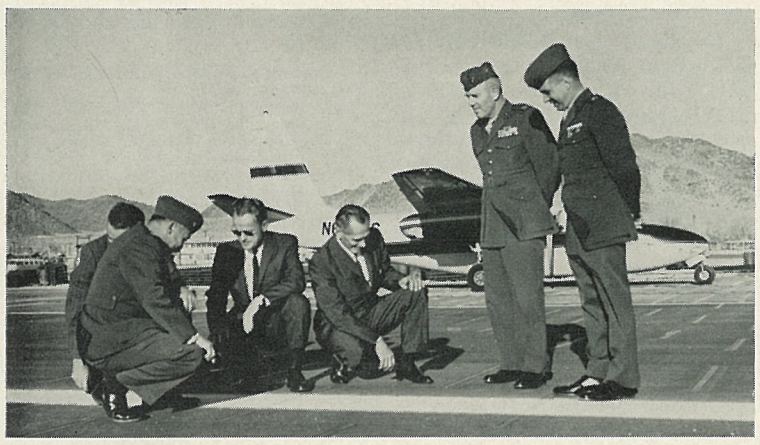
Throughout a series of demonstrations ranging from normal touchdown and lift-off to maximum braking on short stops, there was no evidence whatsoever of bow wave ahead of the braked wheels, said Jackson.

Too, the Convair mats suffered no ill effects during critical 90-degree taxi turns, in spite of the scrub action from the KC-130's landing gear which often causes severe mat damage.

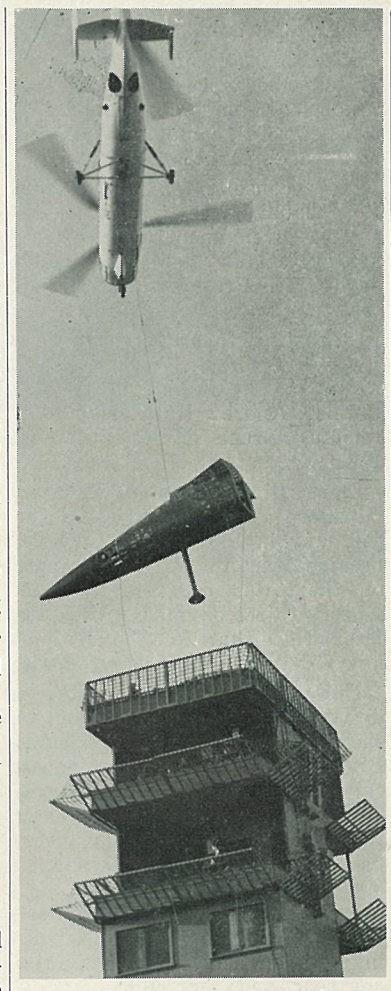
Laying characteristics of the Convair mat concept were simple and fast. The technique of laying a single row the full length, then assigning any number of teams to fill in from the fixed edge, limits laying rate only to available manpower.

Mat removal and replacement was demonstrated with results showing that major repairs can be made in a minimum of time.

The new single tie bar arrangement provides an extremely stable, smooth airfield, said Jackson, with load distribution from any given mat reacted throughout the entire surrounding surface.



CLOSE LOOK—Marine Corps and GD/Convair officials inspecting Convair landing mats now laid in Twentynine Palms Marine Corps Base airfield are, from left, Maj. W. J. Long; H. W. Dvorak, SATS systems group engineer; C. L. Jackson, SATS systems program manager; W. D. Reed, manager of manufacturing; Col. W. F. Humphreys, Marine Corps Base chief of staff; Capt. A. J. D'Arco. Company Aerocommander, in background, made first official landing last month.



GOING UP—Mockup of nose section is lifted atop tower by helicopter for testing of F-111 radar homing and warning system at Dalmo Victor Co. in California.

Ashley Farrar Marketing Vp At Rochester

Ashley A. Farrar has been appointed vice president-marketing for General Dynamics-Rochester, Richard A. Wilson, presiden of the division, announced. Wilson also reported that Sidney R. Curtis has been named vice president-government/industry relations.

Farrar's responsibilities include the marketing of military and industrial products as well as contract administration.

He was formerly vice president and general manager of Pickard and Burns, Inc., electronics subsidiary of the Gorham Corp., in Waltham, Mass.

Curtis has been with the company since his graduation from Yale University in 1925, when he joined what was then called the Stromberg-Carlson Telephone Manufacturing Company. During his career, he has been concerned with both manufacturing and sales, and since 1961, has been vice president-plans and programs for the division.

GD Retirement Benefit Upped For Salaried

A vastly improved retirement program for non-represented salaried employees of General Dynamics Corporation has been authorized by the Board of Directors, Roger Lewis, president, announced last week. The new program will apply to all divisions except Liquid Carbonic and Material Service, which are covered by separate programs.

The changes will have far-reaching effects throughout the Corporation and update and increase prior accrued benefits, provide more protection against loss of earning capacity, and will cost the individual 50 per cent less, Lewis explained in a personal letter mailed to all employees affected.

The program became effective Jan. 1, 1964, subject to approval of the Internal Revenue Service. Major improvements include reduction of employee contributions by one half; updating and increasing all prior accrued benefits; provision for a permanent and total disability benefit; liberalization of early retirement benefits.

Employee contributions are being reduced from 5 per cent to 2½ per cent of base salary rate in excess of the Social Security wage base (presently $4,800 annually) without reduction of the monthly retirement income earned.

"The retirement benefits of persons who retire or terminate in 1964 prior to IRS action will be determined in the first instance in accordance with the prior provisions of the retirement plan and will be adjusted as required as soon as IRS approval is obtained," A. A. Hendrix, vice president, industrial relations, declared.

In addition to reduction of employee contributions, the improved plan provides for recomputation of accrued benefits on the basis of compensation as of Dec. 31, 1963, rather than the yardstick of previous compensation levels. In most cases this will result in substantially increased ultimate benefits. In this regard, however, special provisions will apply to those who retire within the next five years.

The new program also includes a total disability benefit providing full earned benefits at the time of disability, providing certain eligibility requirements are met.

Early retirement benefits are also substantially liberalized under the improved plan. The reduction in benefit now will be only 3 per cent for each year of early retirement between ages 60 and 65. For those retiring before age 60, the reduction will be slightly more than 3 per cent per year.

The new program further provides for increase in interest rate from 2½ per cent to 3½ per cent on employee contributions.

Provisions of the new plan will be explained in detail in employee meetings in the near future.

GD/Convair Passes $1 Million Goal for Expense Cut in '63

General Dynamics/Convair went over its million-dollar goal set by Resources Economics for reducing operating expenses during the year of 1963.

As final figures were tabulated within the Resources Economics function which monitors cost-cutting efforts in the division, savings went well over the target—hitting $1,050,916 by year-end.

This was the second consecutive year that Resources Economics had pushed dollar savings within the division beyond the million-dollar mark, said Vic Janusz, supervisor of facilities control and cost reduction.

Of 78 projects put into action during the year, 70 were completed. Biggest dollar savings came from area consolidations within the plant, more efficient and less expensive means of communications, reduction of electrical consumption during off-shift hours, and streamlining of departmental reports.

These major projects will continue throughout the current year, said Janusz, with special emphasis on better use of in-plant space, reduction in utilities, and savings in communications, wherever possible.

He asks that all departments, and every individual within the departments, put their minds to searching out ways and means to cut expenses.

"Every time a light is turned off when it is not needed or a wire sent instead of a long-distance call, the money saved, even if it's only a few cents, will reduce our overhead and help put us in a better position to compete for future business."

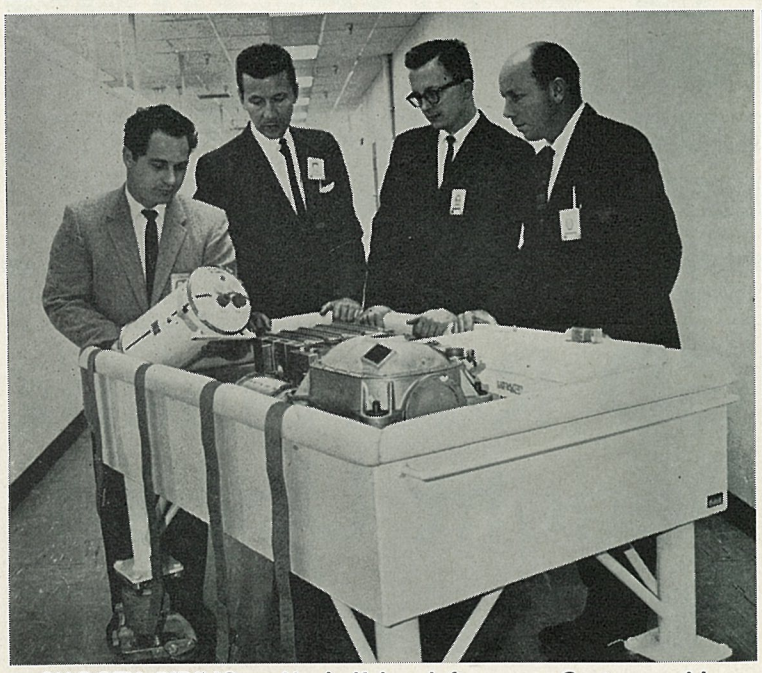
Author of 'Executive Myth' Will Speak

GD/Astronautics Management Club meeting tonight (Jan. 15) at OceanHouse will hear Dr. Edward Stainbrook, author of "The Myth of the Overworked Executive," as guest speaker.

The event, for members and their ladies, will open with a social hour at 5:30 p.m., followed by dinner at 7.

Atlas Weapon System is sponsoring department. Admission is $3 per person.

GROUNDWORK—Marines at Twentynine Palms, Calif., base try their hand at laying GD/Convair developed landing mats as impact area of base airfield for actual use by military planes. At left and center, four-foot square panels are positioned; at far right is all-over shot of GD/Convair mat strips after connection. First military craft to try out new matting was KC-130 from El Toro base.



SMOOTH RIDING — Hugh Kyler, left, eases Centaur guidance component into compartment in special handling cart, as Al Pedo, Dick Smith and Don McMurtrey observe. Other components are already nested in foam-lined cart. Note pneumatic, spring loaded wheels.

Special Foam-Lined Carts Guard Precious Guidance Components

Three carts turned over last month to Centaur inertial guidance laboratory at GD/Astronautics marked a milestone in the division's material handling efforts.

The carts were specially designed to prevent damage to delicately calibrated Centaur inertial guidance components, and exemplify a material handling problem which was solved before damage occurred.

The five units involved in each Centaur guidance package are valued at nearly a quarter-million dollars — yet are small enough to fit atop a desk. Aboard Centaur they guide the high-energy space vehicle thousands of miles into space — yet they are so sensitive that a four-inch drop to a solid surface threatens their reliability.

Recognizing the problem of accidental droppage as units are transported during assembly phases, the Centaur guidance group consulted GD/Astro's material handling and packaging engineering (Dept. 405) under general supervisor G. M. "Bud" Coole.

Susbequent meetings with representatives of NASA and affected GD/Astro departments led to design of the special handling carts.

Three of the units were built. Each is topped with a compartmented tray which cradles each component in its own foam rubber nest, and is fitted with "safety belts" to hold them gently in place. Carts roll on spring-loaded, swiveled wheels with pneumatic tires.

"We were particularly gratified to be asked to review a potential problem, rather than one which had already resulted in costly damage," Coole said. "This 'before-the-fact' action, marked by the cooperation of all departments involved, is a key factor in eliminating expense from material handling damage."

Figuring prominently in development of the carts were C. E. Meadows of NASA, Don McMurtrey, Dept. 405; Al Pedo, Dept. 954-3; Dick Smith, Dept. 250-2; Hugh Kyler, D. W. Geyer and Dave Peterson, Dept. 967-5.

Two of the carts will be used at GD/Astro's main plant; the third is destined for Centaur's Cape Kennedy launch site.

GD/Astro Opens First Value Seminar of '64

GD/Astronautics opened its first value engineering seminar of the year this week, with 40 employees from various departments taking part in the 40-hour program.

The seminar is the first of 12 scheduled at GD/Astro during 1964.

Technical Papers

(Following are technical papers recently published, delivered, or submitted for publication by General Dynamics scientists and engineers.)

ELECTRONICS - ROCHESTER

FINKELSTEIN—Dr. N. A. "Evaluating the Product of Technical Programs," Industrial Management Council, Rochester, N.Y.

ROSS—Arthur. "The Emphasis is on Reliability—Why?" American Society of Tooling and Mechanical Engineers panel discussion, Dec. 2.

RUBEGA—R. A. and NELSON, D. E. "Purpose and Design of a Multistatic Echo Ranging Experiment at Sea" and "Analysis and Results of a Multistatic Echo Ranging Experiment," U.S. Navy Symposium on Underwater Sound, Washington, D.C., Dec. 2-5.

ELECTRONICS - SAN DIEGO

COMPTON—Robert H. "Cathode Ray Tube and Optical Design of the S-C 3070 Electronic Printer," submitted to Electro-Technology.

TURNAGE—R. E. "Reduction of Distortion in Computer Drive Displays," to be published in Electronic Design.

FORT WORTH

HEDRICK—H. G. "A Preliminary Study on Responses of Micro-organisms to Magnetic Fields," Second International Biomagnetic Symposium, Chicago, Ill., Nov. 30.

KAARLELA—W. T. "Refractory Metal Brazing Alloy Development," AIME Symposium, Los Angeles, Calif., Dec. 9.

GENERAL ATOMIC

PERRY—L. W., manager of project development. "Current Status of Thermionic and Thermo-electric Devices," 1964 SAE Automotive Engineering Congress & Exposition, Detroit, Mich., Jan. 13-17.

POMONA

FIORENTINO—J. S. "A Dynamic Approach to Trajectory Extrapolations in a Central Force Field," submitted to the AIAA Journal.

PARKER—C. B. "Minimizing Ground Current Feedback Problems in Transistor Amplifiers," published in Electronic Industries, January.

SHORES—Marvin W. "Communication Range Nomograph," submitted to Electronics Magazine.

General Dynamics NEWS

Published by General Dynamics Corporation, One Rockefeller Plaza, New York 20, N. Y.; with editorial headquarters at 3302 Pacific Highway, San Diego 12, Calif., P.O. Box 1950, telephone 296-6611, ext. 1071. Logan Jenkins, editor-in-chief.

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Fort Worth Editorial Offices, between Cols. 71-C and 71-D, Assbly. Bldg., GD/Fort Worth, Mail Zone T-63, P.O. Box 748, Fort Worth 1, Texas. Telephone PErshing 2-4811, ext. 2961. Staff: Dave Lewis, editor; Mary Beck.

Pomona Editorial Offices, Room 106-D, Bldg. 1, GD/Pomona, Mail Zone 3-3, P.O. Box 1011, Pomona, Calif. Telephone, NAtional 9-5111, ext. 6226-5279. Staff: Glenn Kehr, editor; Carol Sowers. Daingerfield news office, P.O. Box 947, Daingerfield, Texas. Telephone Lone Star, Texas, 2211, ext. 424.

* * *

Affiliated editions of General Dynamics NEWS are published in Rochester, N. Y., covering GD/Electronics and Stromberg-Carlson, editorial offices, 100 Carlson Road, HUbbard 2-2200, ext. 2555. Norman Howden, editor; and at Groton, Conn., covering GD/Electric Boat, editorial offices at Groton, HIlltop 5-4321, ext. 300 and 513, Joseph Tracey, editor.

Organization Set for New Systems Dept.

Completing realignment begun late last year, organization and key figures in General Dynamics/Astronautics' new systems development department were announced last month.

The new organization is designed to foster and support products' emergence from the division's technological complex into successful competition in the aerospace market.

Now consolidated under Mort Rosenbaum, vice president—research, development and engineering, systems development is headed by Vice President W. H. Patterson.

Reporting to Patterson are T. W. Wills, C. R. Walker, F. J. Dore, P. E. Culbertson, E. W. Boteler, Andrew Kalitinsky, J. D. Phelan, Bruce McKay, P. M. Prophett.

Dore fills the post of director, advanced systems. He joined the company in 1947 at GD/Convair, became assistant project engineer on the Atlas program in 1955, and a project engineer two years later. Since that time, he has held key GD/Astro engineering posts.

Culbertson has been elevated to director, orbital space station, in the new organization. He holds BS and MS degrees in aeronautical engineering from Georgia Tech and University of Michigan respectively; except for a year, has been with General Dynamics since 1952.

Boteler becomes director, Centaur. Before joining GD/Convair in 1951 as senior aerodynamics engineer, and later chief of aerodynamics, he served in engineering capacities with Ryan Aeronautics, then the Navy Bureau of Aeronautics, Washington, D. C. He joined GD/Astro in 1962 as chief of advanced systems technical development.

Assigned as director, Voyager, Kalitinsky is a veteran of nuclear propulsion research. Formerly chief engineer for the Nuclear Energy for Propulsion of Aircraft project, Oak Ridge, Tenn., he joined Dynamics at GD/Fort Worth in 1955 as manager of nuclear research and development; subsequently held related posts after transfer to GD/Astro in 1961.

Director, marketing, is Phelan, a native of Missouri, and University of Minnesota graduate. His career has included service as vice president of marketing for the Budd Co.'s Electronics Division, and in engineering and sales organizations of such firms as ITT Federal Labs, Collins Radio, etc.

McKay, formerly director of current programs in the previous advanced product planning department, becomes director, Space Launch Vehicles (SLV) and Atlas Weapons System (AWS). Before joining GD/Astro he held executive engineering positions with Marquardt Aircraft, Piasecki, and at Bell Aerosystems was assistant vice president and director of marketing.

Prophett becomes director, special projects and MILA. The aerospace veteran joined GD/Convair in 1942 as a B-24 test pilot, soon rose to flight captain. By 1951 he was manager of flight for GD/Convair, and by 1955, chief of engineering flight test. He moved to GD/Astro as director of base activation in 1961 and guided activation of Atlas sites to completion.

Walker, continuing in the post of manager, proposal development, to which he was named in October, served at both GD/FW and GD/Convair before joining GD/Astro in 1956. He was manager of division systems before his recent assignment.

Wills continues as assistant to the vice president, a post in which he has served since 1961. He joined the company at GD/Convair in 1940, and has served as GD/Astro's chief of personnel administration, industrial relations department.

MIXED EMOTIONS—Young fellow is startled by introduction to "Rollo & Son," titles adopted by Roland Soucey, Los Angeles area distribution supervisor for General Dynamics' Liquid Carbonic Division, and his son Leo, 16, as they entertain at San Diego's Mercy Hospital. Soucey annually devotes his vacation to his hobby of "clowning" for shut-in youngsters throughout Southern California.

$2.40 to 35c

'Brainstorming' Marks Typical Value Engineering Session

Take a $2.40 welded aluminum tube and ask a lot of questions like: What does it do? How much does it cost? How else can the basic function be performed?

The result is a 35-cent tube which does the same job—and lasts longer!

The process is called Value Engineering, a philosophy which has become a way of life at GD/Fort Worth.

When the division's 26th two-week seminar ended Dec. 13, 1,060 people had earned VE "diplomas."

In value engineering the aluminum tube, a seven-man team followed the steps taken in every VE project.

First, they nailed down functions, cost, and numbers used, and obtained other historical data. This research step is called "Information Gathering."

"Then came the brainstorming sessions," said Team Captain J. C. Prevo, Dept. 162. "The idea was to think of every possible way of performing the function."

Ideas for this tube ranged all the way from a housewife's regular kitchen funnel to a hardware-store piece.

The team then huddled for the Analytical Phase ("to get ballpark estimates on the most practicable ideas"), and finally pinned down details and gathered support data for the fourth stage, Planning.

Finally came the committee report, listing the top three alternatives.

Top selection for the 2¼-inch diameter and 4-inch tall funnel was a manufactured one-piece, die-formed part.

Besides being far less expensive, it performed the function at least as well as the original funnel. That function is to hold lamination and resins in place while sucking trapped air (via an evacuating hose) from fiber glass panels.

"We're using an increasing number of fiber glass panels on both Centaur and Atlas panels, and other projects," said Rand Creasy, deputy value control coordinator. "Thus the savings could be appreciable."

(Total cost for manufacturing 5,000 of the former units was $12,000, for example, compared to only $1,750 for manufacturing the new type—a whopping 83 per cent saving.)

Bob Ellis, tooling value coordinator, is implementing usage of the new tube in factory departments.

Creasy emphasized that principles of value engineering are being applied in designing the F-111 and in virtually every other area of manufacturing and operations at GD/Fort Worth.

Team members and projects for the 26th seminar were:

Adapter Kit: W. T. Peitrzak, 164; M. J. Chiesson, 165; G. L. Magee, 266; W. M. Hickerson, 107; W. Lester, 187; and S. Z. Hall, 21.

Navy Ladder: W. B. McLaughlin, 166; J. L. Roberts, 162; C. D. Lines, 24, E. E. Guthrie, 12, A. G. Eiland, 4.

Water Bottle: H. L. West, 268; J. A. Bourgeois, 164; G. Andrews, 187; W. L. Frye, 107; J. Gibson, AF; and B. W. Browning, 186.

AGE Item: J. Stuart, 161; N. A. Presswood, 164; J. R. Stovall, 23; J. E. Davis, 180; C. B. Blumberg, 27; and J. W. Ward, AF.

Shop Made Fitting: Prevo, 162; V. E. Korski, 164; R. G. Bryden, 7; T. F. Ryan, 111; R. Schaper, 180; H. Johnson, AF.

Coupler: E. B. Thompson, and W. J. Bither, 164; D. L. Dingmore, 24; A. G. Truett Jr., 187; D. R. Clawson, 28; L. W. Pennock, 11; and R. L. Buckalew, 280.

Shear Pin: P. J. Mais, 65; B. J. Pendley, 263; R. M. Ellis, 83; A. E. Grable, 4; Capt. R. J. Wilson, AF; and C. E. Rohmer, 307.

Project leaders were Roy Cuff, Bob Ellis and Jess Livesay.

Task Force to 'Value' F-111

(Continued from Page 1)

quite costly, involving a number of engineers and testing facilities," Weiher said. "An investigation of the history of this material indicates that the testing may be eliminated by using proper process control techniques."

The savings on this one item alone, figured on the total production order, could save in the neighborhood of $1 million, Weiher estimated.

In naming the task force to handle the job, Cosby said:

"In the course of consummating this assignment, various members of the task force will undoubtedly be required to contact knowledgeable personnel assigned to the various F-111 project organizations for information, assistance and advice. They expect to do this on a minimum-interference basis, and I, therefore, solicit your thorough cooperation in order that the division and the F-111 program may derive the greatest benefit possible from this effort."

HINCKLEY AND KIRK ASSIGNED TO F-111

H. W. Hinckley, B-58 program director, and D. R. Kirk, chief engineer of the B-58 engineering department, have been temporarily assigned to assist W. D. Dietz, chief engineer of the F-111 engineering department.

During the approximate 90-day assignment, R. S. Reade, manager of logistic support B-58, will act as B-58 program director.

W. C. Malloy, manager aircraft systems B-58 engineering, will act as chief engineer of the B-58 engineering department, reporting to Reade.

Newly Formed Firm to Seek Space Business

The "wide, wide world of General Dynamics Corporation" gained added international stature earlier this month upon announcement of the formation of a jointly owned company with a leading Belgian electrical/electronics engineering and manufacturing firm.

General Dynamics and the Belgian organization, Ateliers de Constructions Electriques de Charleroi (ACEC), share in creation of the new firm, Etudes Techniques et Constructions Aerospatiales (ETCA).

The new company will operate initially from Charleroi, an industrial center of about a quarter-million population some 40 miles south of Brussels.

ETCA's activities will include design and manufacture of satellites and space tracking equipment, teaming ACEC's production and European marketing experience with General Dynamics' pioneering aerospace technical background—particularly that of its San Diego-based GD/Astronautics division.

Under Sam L. Ackerman, GD/Astro vice president, Astro's electronic programs department, has amassed years of experience in satellite systems, as well as in development and production of its highly successful Azusa and GLOTRAC space tracking systems.

General Dynamics President Roger Lewis, John A. Dundas, Corporate vice president—international, and Ackerman will serve as General Dynamics representatives on ETCA's board of directors.

B. G. Anderson, presently GD/Astro's manager of trajectory measurement and control, will become deputy managing director of the new firm and resident representative of GD/Astro. He will report to Maurice Desirant, managing director.

Desirant is also deputy director of ACEC's electronics division.

ETCA's president will be Paul Delacave of the Belgian firm, with Dundas of General Dynamics as vice president.

ACEC, General Dynamics' European partner in the new effort, is a major producer of heavy electrical equipment on that continent, with products including large turbines, transformers, generators, etc. It is also a major producer in NATO's HAWK surface-to-air missile program.

Organization of the joint Dynamics-ACEC venture has been in progress for about a year. Corporate officials, Ackerman, and J. D. Phelan of GD/Astro systems development department, were involved in the negotiations.

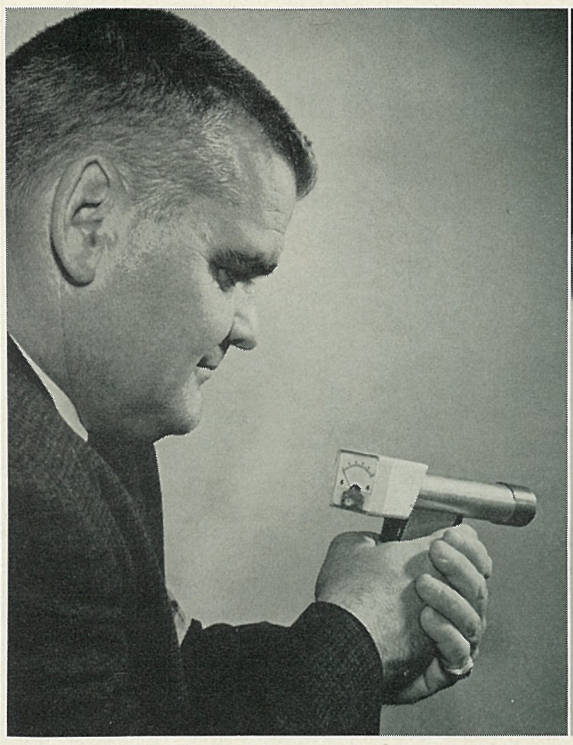
Desirant to Inspect San Diego Facilities

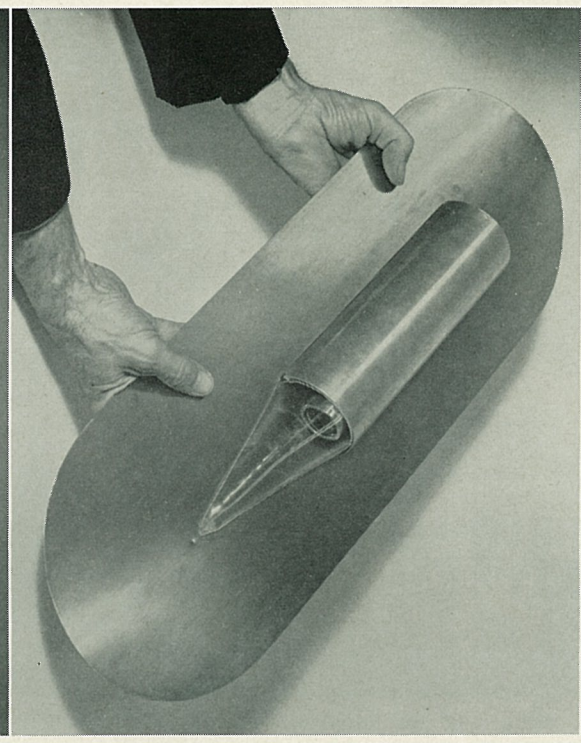
Maurice Desirant, managing director of ETCA, is visiting San Diego this week as guest of Sam L. Ackerman, GD/Astronautics vice president—electronic programs.

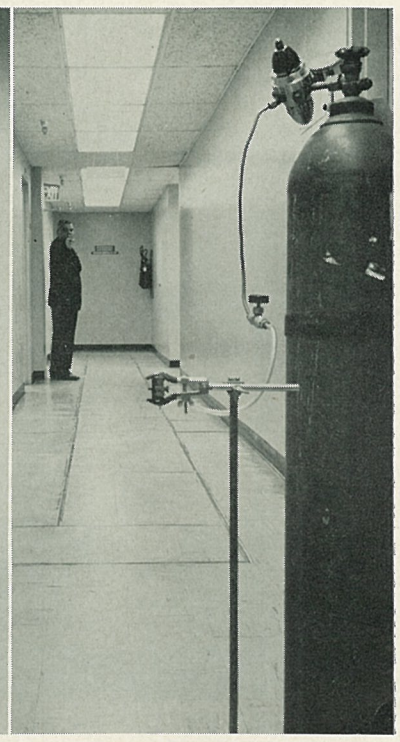
M. Desirant will inspect electronic facilities and installations at GD/Astro, and confer with General Dynamics executives in the area, including John L. Lombardo, general manager of GD/Electronics — San Diego.

EDITOR TO LECTURE ON TRADE WRITING

GD/Pomona employees interested in writing articles for trade publications are invited to a lecture by Alfred Rosenblatt, West Coast editor of Electronic Design, 4:30-5:30 p.m., tomorrow (Jan. 16), Bldg. 3 auditorium. Additional information may be obtained by contacting C. E. Myers, ext. 3210, or A. E. Lambert, ext. 8174, of educational services.







FLAME FINDER — Unique hydrogen flame detector, held at left above by George Carmichael of GD/Astro's Dept. 592-2, and aimed, at right, at invisible burning hydrogen gas, registers presence of flame. In center is mockup of planned missile-borne version to be carried piggy-back to "watch" for fires during flight. Principle is based on infrared discrimination techniques.

GD/Astro's Anderson Shifted to Belgium

B. G. Anderson

B. G. Anderson of GD/Astronautics, selected as deputy managing director of ETCA — new firm established jointly by General Dynamics and ACEC of Belgium — is a veteran satellite and space tracking systems engineer.

He has been with GD/Astro since 1956, and is presently manager of trajectory measurement and control, electronic programs department. At GD/Astro he has been associated with such programs as design and development of the Azusa trajectory measuring system, and the ARENTS satellite.

Anderson holds a BE degree in electrical engineering from Yale University, with graduate work at Columbia and UCLA.

Plans call for Anderson to leave San Diego this month to assume his new duties in Belgium.

McNally Transferred To Electro Dynamic

Joseph T. McNally, cost analyst in the Corporate controllers office in New York City, has been transferred to the Electro Dynamic division at Avenel, N. J., as manager of general accounting.

He is succeeded in New York by John Papachristou, promoted to staff analyst reporting to Richard C. O'Sullivan, director of cost analysis.

McNally has been with General Dynamics since 1960. He received his BBA degree from Pace College, NYC, and prior to joining GD was with United Press International.

Papachristou, a 1959 graduate of Georgia Tech with a BS in industrial management, served as a Naval officer until joining GD in 1961.

Pilot of 456th FIS Logs 1,000 in F-106

B. F. Ferguson, F-102/F-106 project engineer at GD/Convair, was at Castle AFB, Calif., in mid-November to honor the pilot who first piled up 1,000 hours in an F-106.

He presented Capt. E. W. Barnes of the 456th Fighter-Interceptor Squadron with a "Two-Grand Trophy," signifying the pilot's 1,000 hours and the aircraft's own 1,000 hours in the air. Coincidentally, the plane in which Capt. Barnes marked up his 1,000 hrs. was the first F-106 to reach 1,000 hrs. of airframe time.

The trophy was supplied by GD/Convair, builder of F-106s.

GD/FW Engineers Continue Hunt For New High Speed Materials

What will the Mach-busting space ship of tomorrow—operating at speeds of Mach 10 and above—be made of?

A handful of engineers in GD/Fort Worth's structural sciences group tackle this problem daily. And they'll admit the answers are not easy to come by.

"Today's conventional airplane materials, such as steel and aluminum, work all right in temperatures up to several hundred degrees," explained J. E. Burroughs, senior design engineer, "but they can't begin to withstand the high temperatures of of re-entry or hypersonic speeds in the atmosphere."

Accordingly, engineers are exploring the refractory metals—tungsten, molybdenum, tantalum, columbium and various composites—which can take temperatures of 2,500 degrees F. and up. Some refractory metals, for instance, are used in the nose cone and wing leading edges of high-performance planes.

Along with refractory metals, GD/FW engineers are constantly exploring means of coating structures with ablative materials which "peel off" as the vehicle passes through extremely high temperatures.

To do so, they're turning to ceramics—an art which served ancient man's purposes as far back as 1,200 B.C., and promises to serve him even more advantageously in the space age.

"One of our special projects," Burroughs said, "is a double-reverse-corrugated core of columbium, which can withstand temperatures up to 2,500 degrees F.

"Onto this structure we burn a ceramic body, or a foam of alumina, a substance which can take temperatures up to 3,500 degrees F. Then we arc-plasma spray the material with an ablative epoxy coating. This is an organic resin from one-quarter to one-inch thick, depending on the temperatures it will be subjected to."

Burroughs pointed out that without such a coating, even refractory materials would oxidize —literally "go up in smoke"—at temperatures of 5,000 degrees F. and above.

The Air Force is now testing various refractory composites and coatings with a pilotless small-scale hypersonic orbiting vehicle.

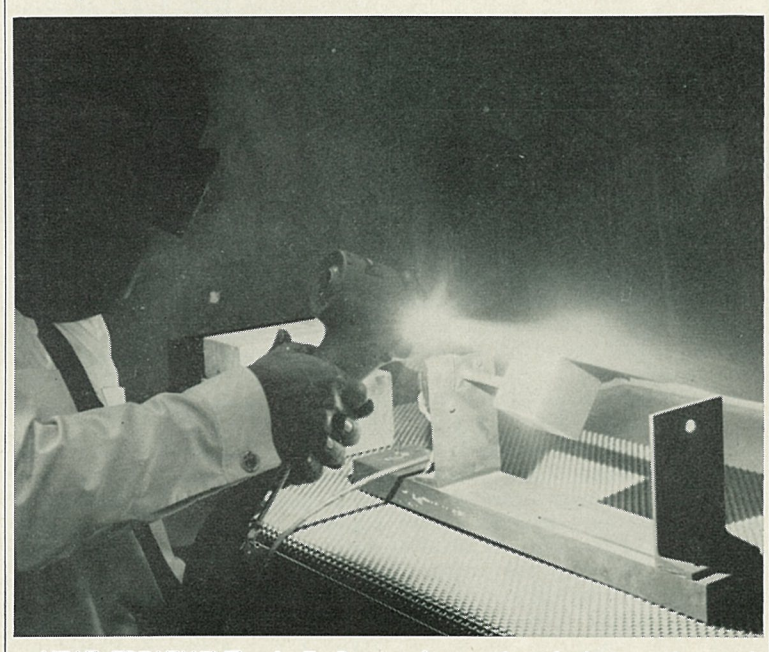
Both industry and government share their experiences with refractory coatings about every nine months through a Refractory Composite Working Group.

Some 90 members of the group started a three-day meeting at GD/Fort Worth yesterday. Representatives were there from a host of firms and institutions, including Air Force Materials Laboratory, National Aeronautics and Space Administration, Naval Ordinance Labs, GD/Fort Worth, Boeing, Battelle Institute, Douglas, GD/Astronautics, GD/Pomona, Illinois Institute of Technology, Lockheed, Lawrence Radiation Laboratory, Martin, Massachusetts Institute of Technology, Ling-Temco-Vought, Picatinny Arsenal, University of Southern California, and Watertown Arsenal.

GD/Astro Men Pass California Bar Exam

Three GD/Astronautics men have been notified they successfully passed the California State Bar Examinations last August.

Olen O. Woods (Dept. 953-2), Jack P. Kelly (Dept. 032-3) and Tom M. Heim (Dept. 512-3) graduated with law degrees from the University of San Diego last June. Each had attended classes in the evening while holding day shift jobs at Astronautics.



HEAT TREATMENT—J. E. Burroughs, senior design engineer, is shown arc-plasma spraying refractory metal on ceramics.

Simple Device Detects Deadly Burning Gases

A simple and effective device which may be one of the first of its kind to help detect the deadly and invisible flames of burning hydrogen gases has been developed within GD/Astronautics optics and lasers group.

G. W. Carmichael, Dept. 592-2 design specialist who was responsible for the flame detector's design emphasized:

"Gaseous hydrogen is particularly dangerous since its flame can not be seen in daylight and a man could walk right into a consuming blaze without realizing it was there.

"With the increasing use of liquid hydrogen, which is used to fuel Astro's Centaur space vehicle, it becomes imperative to have an instrument which will indicate the presence of a hydrogen flame, just as it is now accepted safety practice to use radiation indicators wherever radioactive materials are in use."

The detector's ability to detect a hydrogen flame at practically any distance is based on infrared discrimination techniques, explained Carmichael.

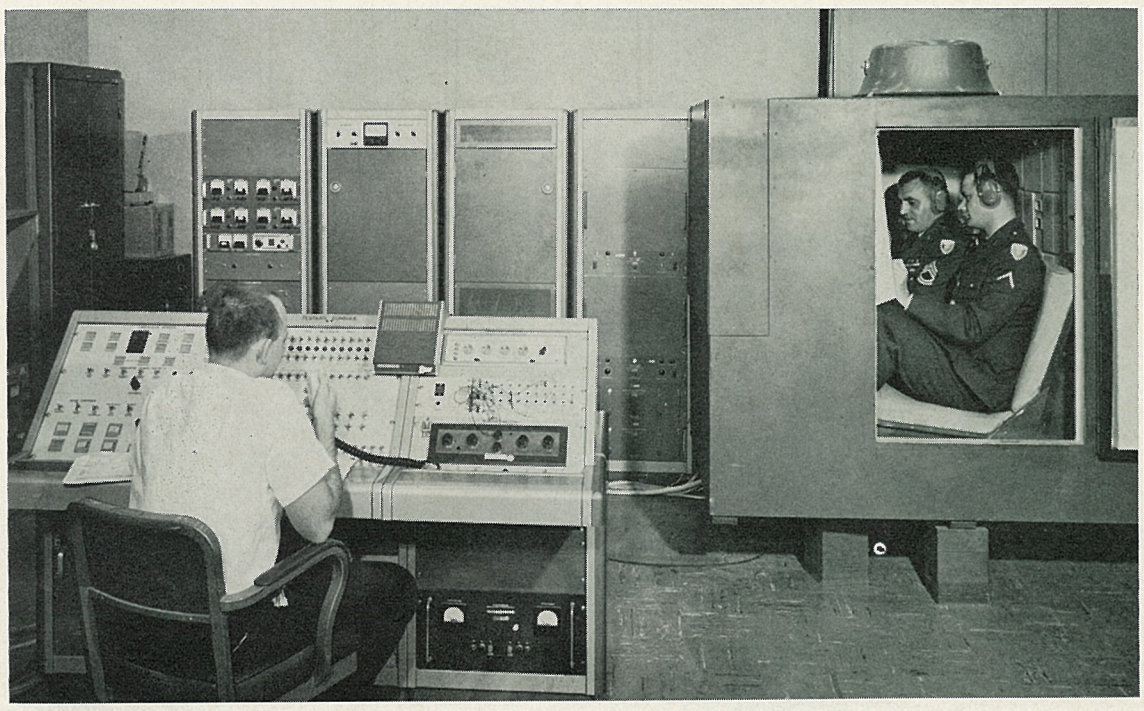
Presence of a hydrogen fire is indicated on a voltage meter at the base of the sensitive device, which in its demonstration version closely resembles a "ray gun." The detector has a wide operating range—even the prototype can easily sense a one-inch hydrogen flame at 100 feet. And, it can be designed to cover an entire hemisphere or a needle-fine field of view.

S. H. Logue, who heads the Astro optics and lasers section, points out that other attempts have been made to sense burning hydrogen, but "this device could prove invaluable during any phase of missile operations where liquid hydrogen is used."

Specifically, some of these areas would be during testing of engines, fueling at missile launching sites, or on actual spacecraft flights.

In fact, a miniaturized missile-borne version of the device now is in the works. It is designed for use within the craft to keep hydrogen handling systems under surveillance or to ride piggy-back on the outer skin to "look" for fires. Information registered on the device would be relayed back to ground control centers over normal telemetering equipment aboard.

Other Astro engineers contributing to the project are D. F. Behrendt, test and evaluation; E. L. Casco, mechanical design and fabrication; L. C. Wilson, head of optical design. The optics and lasers group is a part of Astro's applied research department under Dr. V. A. Babits, manager.



MAULER SIMULATOR—Six U. S. Army men are participating in human factors studies at GD/Pomona to pave way for early operational effectiveness of Mauler weapon system. Mauler Human Factors Simulator consists of operator's compartment, test conductor's console, duplicate fire control unit and power control consoles, and associated measuring devices. At conductor's console is Tom Montgomery (Dept. 7). In operator's compartment are SFC Natale E. DeRosso and PFC Charles A. Stevens.

Mauler Design Tested In Special Simulator

Six U. S. Army men arrived recently at General Dynamics/Pomona for six months of experimental testing and training—not to be first on the moon, but to help pave the way for early operational effectiveness of Mauler weapon system.

The Army troops are participating in Human Factors Experimentation which will adapt Mauler control equipment to the operator early in the program — even before field testing of the weapon system. The experimentation will also point a way to the type and amount of training needed for troops to effectively operate the weapon system.

The Mauler Human Factors Simulation Program is being conducted by Army Weapons Systems Management Operations Analysis Group (Dept. 7) of Supervisor J. C. Norris Jr.

Results of first phase of the program conducted in 1962 were used in establishing initial design. Second phase of the simulator program, now in progress, will provide evaluation of final design and preliminary estimates of many operational facets needed for operational effectiveness studies.

The Mauler Human Factors Simulator used in the experimentation consists of an operator's compartment, test conductor's console, duplicate fire control unit and power control consoles, and associated measuring devices.

The operator compartment simulates the physical environment to be encountered by Mauler operators under tactical conditions with the exception of vehicle motion. The interior dimensions and fittings are identical with those of an actual weapon pod. The compartment will accommodate two operators and is provided with a fire control unit console, power control unit, communication equipment, and other items used by the Mauler operator. The compartment is equipped with a sound system to simulate ambient vehicle, pod, and missile launch noise when these sounds are appropriate to test procedure.

After initial Mauler systems orientation and equipment familiarization, troops perform various operational tasks in the simulator, directed and monitored from the test conductor's console.

Six Army men participated in studies conducted earlier last year using an engineering model of the simulator and later the present research and development model. The present group of U. S. Army men arrived in October for six months of further experimentation.

The present group are all from White Sands Missile Range. They are: SFC Natale E. DeRosso, SP4 William P. Way, SP4 Ronald A. Mowry, SP4 John R. Miller, SP4 Richard E. Pyszniak, PFC Charles A. Stevens.

MERCURY FLIGHT REPORT DRAFTED

GD/Astronautics' SLV test evaluation group this month is putting the finishing touches on a unique report titled "Mercury Booster Flight Test Summary Report."

Scheduled publication date is Jan. 22.

Requested by the Air Force System Command's Space Systems Division, the report contains pertinent and significant summary analyses pertaining to each of the 10 Project Mercury flights. The report contains historical as well as technical information on each flight.

Copies will be forwarded to key Air Force units, libraries, etc.

Marshall Conover, flight test lead engineer (Dept. 684-5), is in charge of preparing the report, assisted by Jean P. Augusta, engineering writer, and Sadie Farewell, publication aide.

S-C WILL SUPPLY IRAQ WITH THREE PHONE EXCHANGES

A contract to provide mobile telephone switching systems for the Republic of Iraq has been awarded Stromberg-Carlson, a division of General Dynamics.

Stromberg-Carlson President John H. Voss said the uniqueness of the trailer-housed equipment, delivery time and proven reliability of the equipment were important factors in the selection of Stromberg-Carlson to assist the Iraqi Posts, Telephone and Telegraph Department in meeting the immediate communication needs of that country.

The contract calls for delivery in Iraq of three telephone exchanges by next October. They will be used in Baghdad at sites where permanent telephone exchange buildings will be constructed.

The mobile exchanges, which will be housed in large air-conditioned trailers, will use standard XY electromechanical switching equipment which is now in service in more than 3,800 telephone exchanges throughout the United States. This equipment will be made compatible with existing Iraqi exchanges. XY switching equipment employs vertical wire banks enabling most efficient operations in the dusty desert environment, and highly versatile plug-in XY switches which can be used as line finders, selectors or connectors thus achieving economy, ease of customer training and minimal maintenance. Stromberg-Carlson has manufactured many trailer-housed mobile XY switching units.

Record Tokyo-London Flight Certified

Maj. Sidney J. Kubesch received certification from National Aeronautic Association for his record flight from Tokyo to London at a Wright Brothers Memorial Banquet recently in Los Angeles.

Maj. John O. Barrett and Capt. Gerard R. Williamson, crewmen on the 8,028-mile Arctic flight which was completed in 8 hours, 35 minutes, were also present.

Attending from GD/Fort Worth were J. D. McEachern, Dick Johnson, Val Prahl and Fred Voorhees.

Dr. Secrest to Speak At Summer Institute

Dr. E. Leigh Secrest, chief scientist at GD/Fort Worth, will be a special guest lecturer at a summer institute in science and mathematics for secondary school teachers at TCU June 8-July 17.

About 100 applicants will be accepted for the institute, 20 in each of five areas of study: biology, chemistry, earth science, physics, and mathematics.

Hustler Business to Continue With Spares, Fatigue Testing

Considerable "B-58 business" remains on the books at GD/Fort Worth, despite completion of virtually all Hustle-Up modification work.

Firm future business in spares, cyclic-fatigue testing, and engineering support extend at least into 1966, according to H. W. Hinckley, B-58 program director.

"In addition," Hinckley said, "the subsystem vendor is now working on Phase I of this program for San Antonio Air Materiel Area.

"There's a good possibility of our doing a major modification on the control system on the B-58 fleet—called Phase II modification. It appears almost certain that we will be authorized to do engineering and flight-test work to develop and test the prototype design.

"There is also other classified modification work which could conceivably offer a substantial amount of B-58 business during the next few years."

Current B-58 work includes:

Spares: money for certain B-58 spares has been funded through 1964. Likely, this business will continue for the forseeable future.

Cyclic-fatigue: Air Force has scheduled a second complete cycle of fatigue testing for the B-58—running into 1965—to ascertain life expectancy of the airplane. GD/Fort Worth test engineers have just finished the first cycle of testing.

Support: under a relatively new type setup, GD/Fort Worth has been authorized by SAAMA to keep available a hard core of some 100 engineers and other technical support people to assist in possible future B-58 modification assignments.

"It is perhaps significant to note that we are keeping certain test equipment available for their use," Hinckley said.

Regular B-58 production came to a halt at GD/Fort Worth over a year ago.

Last year, a number of Strategic Air Command Hustlers were cycled through a two-phase modification program at GD/Fort Worth.

Phase I consisted mainly of adding multiple weapon and escape capsule capabilities; Phase II involved upgrading maintainability and reliability of communications systems, flight control systems, and electronic countermeasure systems.

Only one B-58 remains "in work." It is a former test B-58 now being modified into a trainer bomber.

Tons of Old Records Discarded To Release Warehouse Space

Tons of old records, obsolete for many years, have been discarded at GD/Convair division, preparatory to setting up a divisional Records Management Program, now in force.

"We could soon be swamped with the ever-increasing volume of paperwork required to operate today," H. L. Henrie, chief of systems and procedures, said. "It is simply a matter of space—and cost—in laying down a 'rule of the thumb' on what is important enough to keep and what is not. We can't allow paperwork to push us out of the 'house.'"

It took several men from systems and procedures about three months to go through all of the old records stored in the Records Center and decide what should be kept and what was no longer of any use. They began sorting last summer.

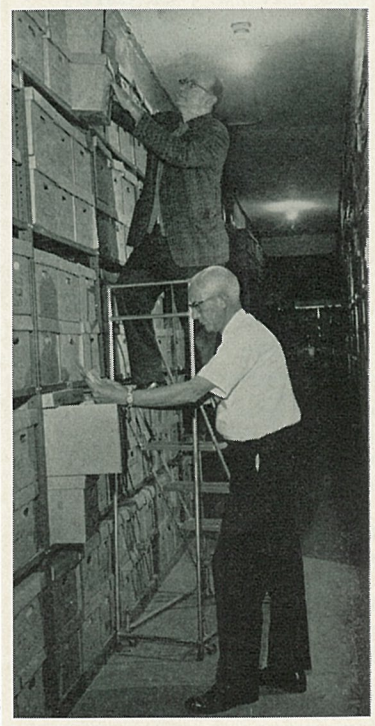
When they finished the monumental task, 46 tons of records in 3,000 containers were carted away and sold as salvage paper. This house cleaning released at least 3,000 cubic feet of warehouse shelf space for future use.

Now, records control coordinators have been appointed within Convair departments to work with systems and procedures on records problems. A schedule has been set up for records used in each department to spell out length of time they should be kept actively on file within the department, then how long they should be kept inactive at the Records Center.

Ordinary run-of-the-mill reports are kept from 5 to 7 years. Research and engineering material stays active 10 years; inactive 40. Vital business records, such as contracts, supplemental agreements, permits to do business, contractual requirements are kept permanently.

"We must make this surveillance a continuing program," Henrie said. "Only by constant, orderly check can we achieve our goals: more efficient use of valuable office space; increased ease of filing and information retrieval; assured availability of older records; orderly destruction of obsolete records."

Forms, stocked at the division's stationery stores, must be used for control purposes.



HOUSE CLEANING — Harold Hahn of GD/Convair examines records stored at Records Center, while Bert Begue, archives custodian, pulls out more boxes during gigantic clearance of obsolete paperwork.

Nearly 2,000 ESs, CIPs Submitted During 1963

A total of 1,990 Employee Suggestion and Cost Improvement Proposal suggestions were received during 1963 and 531 with total savings of $168,190 were approved at General Dynamics' Pomona division alone.

Hourly employees submitted 1,775 suggestions of which 489 or 27.5 per cent were approved and installed. Total savings from these Employee Suggestions were $93,012.

Cash awards paid for ESs totaled $14,554—an average of $29.76 per suggestion approved.

During the year 215 CIPs were received with 42, or 19.5 per cent, approved for total savings to GD/Pomona of $75,178. Average savings on CIPs approved in 1963 was $1,789.

Since the two programs were started in May, 1954, 15,111 ESs and 2,947 CIPs have been submitted. Of these, 3,783 ESs and 625 CIPs have been approved and installed. Total savings have been $4,018,981, with $1,202,604 resulting from the ES program and $2,816,377 in CIPs.

In this period of less than ten years GD/Pomona's employees have earned a total of $128,310 in suggestion awards.

D. R. Archibald Named to Weapons Committee, To Work on 'Effectiveness Requirements'

D. R. Archibald, manager of reliability control—AWS, of GD/Astronautics has been named a member of the Weapons Systems Effectiveness Industry Advisory Committee.

This group, sponsored by the Air Force Systems Command, is tentatively slated to function for approximately one year. It will bring together experts in particular areas, each of whom will be assigned to one of five special task groups.

Archibald will work in a group in development of methods for determining effectiveness requirements.

"System Effectiveness" is a new term being used to describe complete assessment of military systems' value and capability with emphasis on factors or elements affecting systems' cost and performance. Air Force objectives center around incorporating all necessary considerations throughout system development, production, deployment and use.

Col. E. A. Kiessling, headquarters, AFSC, was directly responsible for naming Archibald.

THREE FOR THREE—Pictured here are GD/Astro crews and supporting personnel involved in highly successful triple Atlas launching Dec. 18. In top photo are those responsible for launching Atlas 109-F at Vandenberg AFB, last of F-series Category II. In lower picture are those who launched Atlas 227-D from Pt. Arguello Launch Complex II. This Atlas, a SLV, carried Agena stage aloft.

'Tripleheader' Launch Draws Praise to Atlas

VANDENBERG AFB — Praise for the role GD/Astronautics and its employees played in the Atlas "tripleheader" launch Dec. 18 continues to arrive. Most point up one or more of the unusual aspects of this feat.

For instance, the fact the event marked the first time three vehicles of the same type had been launched in a single day. This includes not only the entire seven-year history of Atlas flights, but also all major aerospace missile and rocket programs.

Too, there is the record that each of the three Atlas launches was on a different mission and each was a complete success. Two launches were of the Atlas Weapons System vehicles, one of the Atlas Space Launch Vehicle type.

They were the 197th, 198th and 199th launches in the Atlas program. They were also the 86th, 87th and 88th Atlas launches from this base and made the 1963 launch record stand at 36 (compared to 31 in 1962).

Astro President J. R. Dempsey called the "three-for-three" accomplishment "a fine achievement for the Air Force and General Dynamics/Astronautics. My congratulations to all involved for an outstanding job."

Col. R. C. Thompson, deputy for Atlas at Ballistic Systems Division, wired that the Atlas System Program Office (BSD) "extends its congratulations and appreciation to all members of the Atlas team and those test support agencies whose dedication, skill and energy contributed to the successful launch of Atlas 109F." He pointed out this was the final series "F" Category II launch and marked the completion of this phase of testing.

"The SPO is certain that your continued interest, cooperation and supporting effort will enable timely and effective resolution during the Category III and ABRES programs. Once again—to all hands—a sincere well done," he added.

While the three launches were recognized as occurring in a single day, Astro's Pacific Missile Range operations personnel here prefer to call it a half-day. That is, only 12 hours and 45 minutes lapsed between the first and third launches!

Atlas 233D, launched from VAFB Launch Complex 4300-A (formerly 576-A), led the way at 2:15 a.m. It carried aloft an ABRES re-entry vehicle and was an AWS "bird." A. H. "Arnie" Hoines was launch operations manager, while Val D. Wynn was site manager for Astro.

Atlas 227D, launched from PALC II, followed at 12:53 p.m. It was an Atlas-Agena configuration and an SLV "bird." C. A. "Curt" Johnston is manager for SLV, while F. M. "Maurie" Anderson is site manager for Astro.

The Atlas 109F launch from OSTF-II at 2:40 p.m. concluded the "show." Under Hoines for this launch were Jim Copeland, site manager, and Alex Mau, assistant site manager.

Renovation Program Passes First Phase

First phase in a long-range renovation program at GD/Convair Plant 1 is well under way with the reroofing and replacement of domestic water lines in Bldg. 1, said Vern Sharp, chief of plant engineering.

So far, roofs of Bldg. 51 and Bldg. 35, the low-speed wind tunnel structure, have been resealed. Bldg. 1 overhauling has included resealing of the exterior roof by spraying with asphaltic paint for better protection and replacement of deteriorated metal sheeting; glassing and sealing of drainage gutters; replacement of domestic water lines with copper pipes.

CEREMONIAL—G. E. Sylvester, GD/Pomona vice president - operations, presents ceremonial Advanced Terrier quarterdeck markers to Capt. W. J. Caspari, commanding officer of USS England (DLG-22), Advanced Terrier-armed frigate commissioned Dec. 7 at Long Beach Naval Shipyard. Present, from left: Cdr. J. Morgan, executive officer; Capt. Caspari, Sylvester, LCdr. D. C. Pette, weapons officer, and Lt.(jg) D. H. Vied, missile officer.

STARTER—This GD/Astro crew launched Atlas 233-D from Vandenberg AFB at 2:15 a.m. Dec. 18, starting triple launch sequence. Atlas 227-D followed at 12:53 p.m. and Atlas 109-F went up at 2:40 p.m.

Four-Inch Carpet of Soapy Foam Laid In Dramatic Safety Demonstration

GD/Fort Worth demonstrated its jet age gear to safety-minded representatives of Air Force and industry last week.

Displayed were "Mad Dog," the converted O-11-A crash truck which uses chemical foam; and a foam-spreading service truck capable of laying a swath up to 24-feet wide.

A brief orientation was given by I. B. Hale, manager of industrial security, and Phil Cummins, Dept. 17, who was instrumental in developing both vehicles.

In a demonstration north of the plant, firemen laid a four-inch cushion of foam. They used the same service truck that was ushered into service during the recent emergency landing of a commercial plane at Carswell AFB.

Then the group was taken to the Carswell AFB practice pit to watch "Mad Dog" douse a blazing 5,000-gallon JP-4 fuel fire in less than three minutes.

Among those who witnessed the event were: Col. Max Boyer, Air Force Plant Representative; Gen. Albert Boyd (retired) of GD/Fort Worth; Maj. Charles W. Boyd, Air Force acceptance; F. E. Chambers, director of industrial relations and security; Bill Funk and Bill Easley, GD/Fort Worth, involved in F-111 flight safety; and Fred Temple, chief of safety.

Green Named Program Mgr.

J. E. Green has been named manager of program control, electronic programs, at GD/Astronautics by S. L. Ackerman, vice president and program director.

He replaces G. G. Prentice who has accepted a new post as chief of operations program control, reporting to F. D. Robbins, manager of material operations.

Green is a Marine Corps veteran who holds BS degrees in business administration and mechanical engineering and a Master's degree in business management, all from University of Colorado.

He joined the company in 1956 as an engineering planner, and (following scholastic leave to obtain his advanced degree) later served as master scheduler and schedules engineer.

GD/E Relocates To Free Space

A relocation affecting over 100 GD/Electronics-San Diego people at Plant 1 was completed the first of the year to consolidate related functions and release space for future activities, announced A. E. Degler, GD/E manager of plant engineering.

GD/Electronics has expanded into 10,000 sq. ft. of area in Bldg. 5 on the west side of the main corridor connecting Bldgs. 51 and 5, adjacent to the engineering auditorium.

Now located there are plant engineering people, formerly located in offices on the roof of Bldg. 51; 30 purchasing personnel moved from Bldg. 51 second floor; 18 material control people from Bldg. 51 ground floor; and 20 plans and programs employees relocated from Bldg. 51 second floor.

These functions were moved into the same area to expedite material procurement activities, said Degler.

Another simultaneous move saw production engineering, involving about 40 people, shift to the 2-C area of Bldg. 51. This releases their former location in 2-B for a research and development engineering laboratory to be activated within the next month or so.

GD Men Join Cal Faculty

General Dynamics men at San Diego-located divisions who will be members of the faculty during the spring semester of the University of California Extension include 11 from Astronautics, six from General Atomic, and two from Convair.

They are: Astronautics—Raymond Elliott, design specialist, who will teach a course "Introduction to Electronic Digital Computing Systems." Carl G. Erickson, design specialist, coordinator of Mechanical Engineering Review, with Robert M. Kuhns, assistant project engineer, and Philip J. Swanson, assistant project engineer, instructors. Ernest Hamilton, senior electronics engineer, coordinator of Electrical Engineering Review, with James J. Fithian, electronics group engineer, and Richard K. Walter, GD/Convair design specialist, instructors.

James F. Haskins, staff scientist, "Advanced Engineering Mathematics." Cyril H. Nute, design specialist, "Advanced Engineering Mathematics." Douglas L. Platt, space and weapon system program analyst, "Fundamentals of PERT Planning and Control" and "Advanced PERT." Theodore Rubin, design specialist, "Probability and Statistics." Bruno F. W. Witte, design specialist, "Numerical Methods in Algebraic Problems."

Besides Walter, the other Convair faculty member is Nicholas Van Dorn, design specialist.

General Atomic instructors will be: Morton A. Fineman, research and development staff, "Molecular Beam Chemistry." Tomas E. Firle, research staff. Eugene Haddad, research and development staff, "Nuclear Physics." Jerome Kohl, coordinator of special products, and Lloyd R. Zumwalt, senior research advisor, "Measurement and Use of Radiation and Radioisotopes." James Watson, research and development staff, coordinator of lecture series, "Horizons in Space Biosciences: Exobiology."

DYNAMICS PRODUCTS TO GO ON DISPLAY

General Dynamics aircraft and missiles used by the North American Air Defense Command figure among displays open to the public this week during San Diego's "Aerospace Defense Week."

Convair-built F-102 and F-106 interceptors; Terrier and Tartar guided missiles built by Pomona division; aerospace products of Astronautics; and, probably, a nuclear-powered submarine, built by Electric Boat, are scheduled for exhibit.

Indoor exhibits are housed in the Aerospace Museum on Balboa Park's Zoo Drive, with full-size aircraft and missiles located on the parking lot next to the Zoo. Submarines, if open to public tours, will be in San Diego Harbor. Displays may be seen all week from 10 a.m. to 4:30 p.m.

San Diego Junior Chamber of Commerce is sponsoring the Jan. 12-19 aerospace observance.

Technical Society Elects Pomonan

Douglas C. Tubbs, GD/Pomona publications art section supervisor, has been elected first vice president of Technical Illustrators Management Association International (TIMA) for 1964.

TIMA has approximately 230 members in the United States and Canada engaged in management and production of technical art for military and industrial contractors.

The association is currently making plans for the largest exhibition of technical and industrial art in the world to be held March 25 through April 26 at California Museum of Science and Industry in Exposition Park, Los Angeles. This exhibit is viewed each year by more than 100,000 people.

Search For 'Kamikaze' Defense Led to Creation of Pomona Div.

(Following is the second in a series of articles dealing with history and products of a particular General Dynamics Corporation division, to remind readers of the vast extent of General Dynamics activities.)

Officially established as an independent division on March 1, 1951, the roots of Pomona Division of General Dynamics actually go back to 1944 and a Navy project to find a weapon capable of defense against Japanese suicide plane ("kamikaze") attacks on U. S. warships during World War II.

Studies made in 1944 led to the belief that an ideal anti-aircraft weapon would be one capable of homing on piloted aircraft. Early in 1945 the Bureau of Ordnance (Navy) enlisted the aid of the Applied Physics Laboratory at Johns Hopkins University.

Overall technical direction of an early application of what is now called the "weapon system concept" was assigned to APL which in turn selected associated contractors in many fields: pure research, electronics, explosives and the like. Convair was chosen to carry principal airframe responsibility and had a collateral role in the ramjet burner development.

Work on two types of airframes was carried on at Vultee Field under the direction of C. R. Irvine, chief engineer.

FIRST MISSILE FIRINGS "FIZZLES"

Analysis of aerodynamic data was completed in August and the first missile sent to APL in October. First two firings on the East Coast were not very successful but a third one launched at the new Naval Ordnance Test Station near Inyokern, Calif., in January, 1946, was moderately so. By March of that year a "fully successful" firing heartened engineers and the slow painstaking development and refinement followed. The STV-1 series was followed by STV-2 series (first fired in August, 1947) and the early STV-3 which was first fired April 8, 1948.

A spectacular breakthrough by the contracting team solved the aerodynamic and control problems so well that BuOrd and APL decided to convert the STV-3 into a tactical weapon without waiting for perfection of the ramjet motor. Thus the Terrier missile system was born.

By 1950 the experimental designs had reached a state of success that warranted a major scale production to build up the nation's guided missile arsenal. Manufacturers were requested by Department of Defense to submit a proposal to achieve two objectives: production of a quantity of Terrier missiles and the establishment of a Navy Industrial Reserve Ordnance Plant capable of such production. Verbal acceptance of Convair's proposal was made Jan. 8, 1951, and the Guided Missile Division established March 1, 1951.

Personnel assigned by the parent plant in San Diego proceeded with activation of Plant 2, a rental facility which had been used by Convair during World War II and subsequently found excess. This group established the facility layout and machine requirements for the embryo production operation.

SITE IN POMONA CHOSEN FOR PLANT

The complexity of the project was so great that emphasis was placed on the prompt separation of personnel associated with it from parent Plant 1 management structure, creation of a new division charged with San Diego production problems, and selection of a site for construction of the Naval Industrial Reserve Ordnance Plant.

A site in Pomona, Calif., was chosen and the Navy purchased land on April 4, 1951. Ground was broken on Aug. 6, 1951. While new plant construction was in progress, facilities at Los Angeles County Fairground and in downtown Pomona were used. Construction progressed to the extent that the Engineering Building (Bldg. 4) was ready for occupancy on Aug. 25, 1952. Personnel moved in and six days later, Sept. 1, initial manufacturing operations were started in that building.

As rapidly as other buildings were completed, people were added to the work force by transfer from San Diego or recruited locally. Despite the confusion of this period, Pomona production continued, and the first missile was accepted by the Navy at Pomona in January, 1953.

While early work at Pomona centered on Terrier and its support equipment, later programs have included Tartar and Advanced Terrier for the Navy, Redeye for the Army and Marine Corps and Mauler for the Army. These programs have helped establish the Pomona Division as the nation's leading development and production facility for tactical guided missile systems.

First lot of Terrier missiles produced at Pomona was accepted by the Navy on April 29, 1953. First successful shipboard launching of a high explosive warhead missile from this lot was achieved from USS Norton Sound five days later, May 4, 1953.

MISSISSIPPI USED FOR FIRST TESTING

Early tactical testing of Terrier was conducted aboard USS Mississippi. The cruiser USS Boston was recommissioned and from its deck the first active Terrier was launched in September, 1956. Three months later the USS Gyatt was recommissioned and armed with Terrier, becoming the first guided missile destroyer in the world.

Research and development on Advanced Terrier design proceeded simultaneously with development of the original Terrier. R&D contracts for the improved version were awarded to GD/Pomona in 1951 and 1953 and in 1956 the first Advanced Terrier pilot line missile contract was awarded. By 1959 initial production began.

The Navy constructed and commissioned cruisers and destroyers to carry the new weapons. Today a total of 26 warships are armed with original Terrier or Advanced Terrier.

Both Terrier and Advanced Terrier are beam-riding missiles powered by solid-fuel rockets. A booster supplies initial high thrust, accelerating the missile to supersonic speeds, then drops away. The sustainer, a part of the missile proper, maintains velocity to target intercept.

Both missiles (with boosters) are about 27 feet in length and approximately one foot in diameter. Advanced Terrier also has surface-to-surface capabilities that can be used against shore installations and other surface targets.

Next need of the Navy was for a more compact supersonic guided missile for anti-aircraft protection of destroyer-type ships. The answer was Tartar and first engineering contract for this missile was signed in December, 1955.

First Tartar production missile was delivered to the Navy in May, 1959, and early testing was conducted aboard the USS Norton Sound. Late in 1960 the missile became operational with the commissioning of the USS Charles F. Adams. Since that date 18 destroyers have been especially built to carry Tartar, which also serves as secondary battery aboard two cruisers.

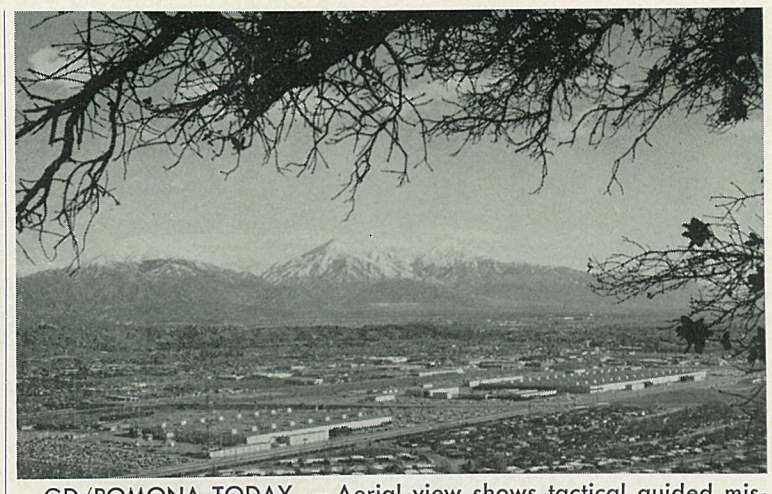
Tartar is a supersonic homing missile designed to serve as an anti-aircraft shield against both low and high-flying aircraft. Measuring 15 feet long, the missile contains a dual thrust rocket motor. The homing guidance system is made up of several interrelated units constructed so they form the basic airframe of the missile.

ARMY BECOMES POMONA CUSTOMER

A solid-fuel, dual-thrust rocket motor was designed and developed to achieve the desired size reduction for this missile. Tartar receives initial thrust during a short burning period that launches and accelerates the missile to supersonic speeds. Then a lower-thrust, long-duration burning period maintains this high speed to target intercept.

In the past few years two weapons for the U. S. Army have been under development at Pomona. One is the shoulder-fired Redeye missile designed for infantrymen of both the Army and U. S. Marine Corps. The other is the Mauler weapon system, a highly mobile air defense missile system that is a keystone of the Army modernization program.

Pomona division personnel began initial Redeye studies in 1956, financed by company funds. Plans had been under development for three years when the first Redeye engineering contract was awarded to the division by the Army.



GD/POMONA TODAY — Aerial view shows tactical guided missile facility's 1,300,000 square feet of buildings located in southwest corner of Pomona, Calif.

Designed to give combat troops the capability of destroying low-strafing or bombing aircraft, Redeye is easily man-transportable and is intended to be shoulder-fired against low-flying jets or conventional warplanes.

The missile launcher outwardly resembles the bazooka of World War II fame and is about four feet long, three inches in diameter and the entire weapons system weighs about 28 pounds. A composite structure, Redeye contains a propellant, an infrared guidance system and a high-explosive warhead.

First contract for Mauler development was awarded to GD/Pomona in 1960. Earlier, 97 firms had been asked to consider the Mauler concept — 31 submitted proposals with competition later narrowed to 12 and then to four before Pomona was selected.

Mauler, a compact, mobile weapon system, will use solid-fuel, radar-guided missiles to destroy short-range tactical missiles and rockets and high-performance tactical aircraft near forward battle area positions.

Each Mauler unit will be contained entirely on a self-propelled chassis and will be capable of delivering accurate fire while moving. In addition, each Mauler unit will contain its own power supply, target detection and electronic fire control equipment, as well as its own battery of missiles.

Development and production of guided missiles has been the chief concern of Pomona division but it is by no means the only activity engaging the diversified capabilities of the division.

POMONA ACTIVE IN ASSIST WORK

The division has done assist work for Astronautics, Convair and Fort Worth divisions. One of the most important contributions in this respect was made to the Atlas program by work on hardware and automatic test equipment.

Customer training courses for armed forces personnel have been conducted through the years. Classes to familiarize Navy officers and men with Terrier, Advanced Terrier and Tartar missiles have been given in the past and key Army personnel are now being briefed on Mauler operations.

Corporal missile handling trainers were built at Pomona from 1954 to '56. The Corporal is an Army surface-to-surface missile with a supersonic speed and a range of 75 miles.

Independent research and study programs have included such diverse products as a manned anti-satellite system to inspect and, if necessary, destroy hostile craft in orbit and a "solid state image converter" used to photograph recent eclipse of the sun.

The principal manufacturing facility at Pomona is capable of large volume production of guided missiles and complex electronic systems. Fabrication, assembly and checkout are accomplished within the 750,000 sq. ft. of this area.

The engineering department at Pomona houses a complete weapon system development and product engineering facility, staffed by experienced and highly competent engineers, scientists and technicians.

Analog and digital computer laboratories, antenna test ranges, fully equipped metallurgical and chemical laboratories and environmental test chambers help effect a complete engineering facility.

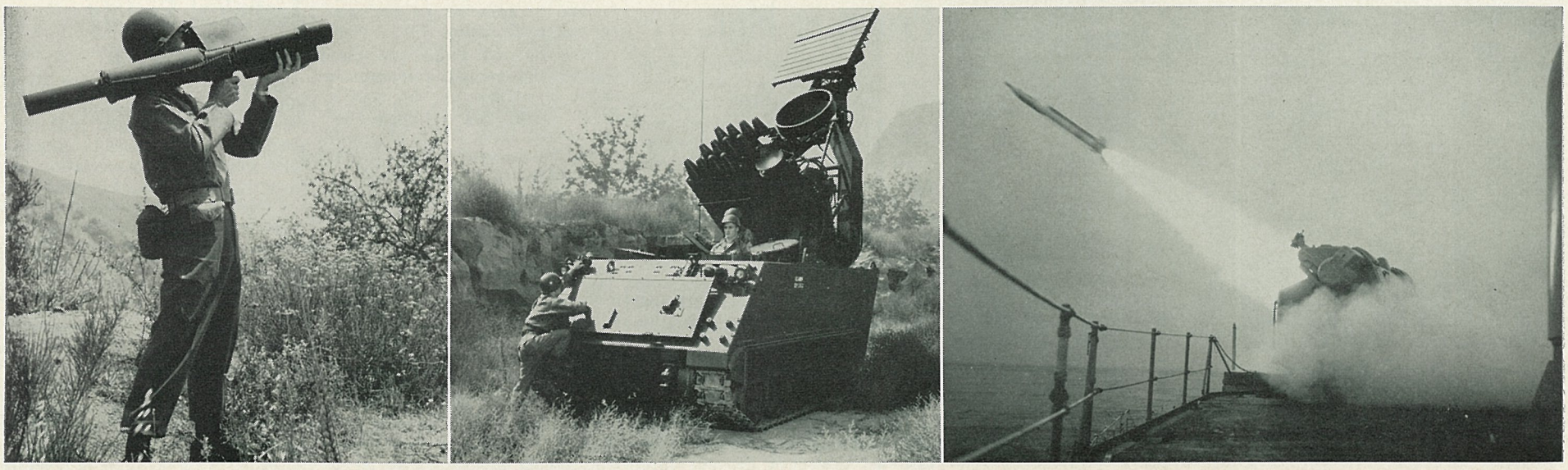
PRESENT POPULATION IS ABOVE 6,500

Present facilities at Pomona cover 1,300,000 sq. ft., housing in excess of 6,500 employees. C. F. Horne, former Civil Aeronautics Administrator, is president of the division and a vice president of General Dynamics Corporation.

Horne, a retired Navy rear admiral, was graduated from the United States Naval Academy at Annapolis in 1926. He has a master of science degree in communications and electronics from Harvard University. Active in many professional and civic organizations, he is currently president of Electronic Industries Association. He was named manager of the Pomona Division in 1953.

In 1961 the Ordnance Aerophysics Laboratory located in Daingerfield, Texas, was placed under the supervision of Pomona Division. The Daingerfield facility has two modern high altitude test cells, two sea level test cells and one small scale cell. The high altitude chambers are designed for blowdown operations and are capable of free-jet and connected inlet testing of full scale ramjet engines.

Operated by General Dynamics for the Bureau of Naval Weapons, the laboratory employs approximately 260 engineers and technicians.



POMONA PRODUCTS — At far right, supersonic Tartar guided missile which now arms more than score of warships, leaves launcher. In center is engineering model of Mauler, air defense guided missile system with capability against short range rockets. At left is shoulder-fired Redeye guided missile.

GDDDDDDD

SAN DIEGO EDITION
(Serving GD/CONVAIR
and GD/ELECTRONICS)

GENERAL DYNAMICS NEWS

Vol. 17, No. 2 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, January 15, 1964

GD/Convair Passes $1 Million Goal for Expense Cut in '63

General Dynamics/Convair went over its million-dollar goal set by Resources Economics for reducing operating expenses during the year of 1963.

As final figures were tabulated within the Resources Economics function which monitors cost-cutting efforts in the division, savings went well over the target—hitting $1,050,916 by year-end.

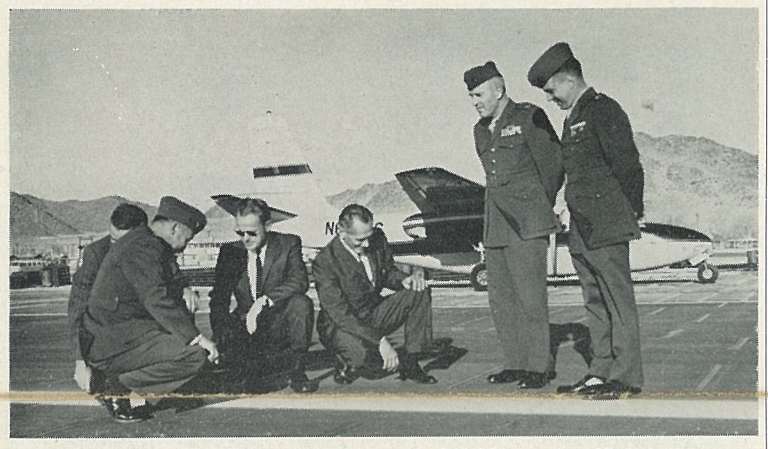
This was the second consecutive year that Resources Economics had pushed dollar savings within the division beyond the million-dollar mark, said Vic Janusz, supervisor of facilities control and cost reduction.

Of 78 projects put into action during the year, 70 were completed. Biggest dollar savings came from area consolidations within the plant, more efficient and less expensive means of communications, reduction of electrical consumption during off-shift hours, and streamlining of departmental reports.

These major projects will continue throughout the current year, said Janusz, with special emphasis on better use of in-plant space, reduction in utilities, and savings in communications, wherever possible.

He asks that all departments, and every individual within the departments, put their minds to searching out ways and means to cut expenses.

"Every time a light is turned off when it is not needed or a wire sent instead of a long-distance call, the money saved, even if it's only a few cents, will reduce our overhead and help put us in a better position to compete for future business."



CLOSE LOOK—Marine Corps and GD/Convair officials inspecting Convair landing mats now laid in Twentynine Palms Marine Corps Base airfield are, from left, Maj. W. J. Long; H. W. Dvorak, SATS systems group engineer; C. L. Jackson, SATS systems program manager; W. D. Reed, manager of manufacturing; Col. W. F. Humphreys, Marine Corps Base chief of staff; Capt. A. J. D'Arco. Company Aerocommander, in background, made first official landing last month.

Zero Failures Scored In Landing Mat Trials

General Dynamics/Convair's landing mats, now laid as the main impact area in the Marine Corps landing field at Twentynine Palms, Calif., were subjected to first aircraft landings last month.

C. L. Jackson, SATS systems program manager at GD/Convair, said that "results thus far are excellent."

First military plane to try out the GD/Convair developed and fabricated mats was a KC-130F from El Toro Marine Base, piloted by Capt. George Psaros. Gross landing weight of the craft was 100,000 lbs.

Throughout a series of demonstrations ranging from normal touchdown and lift-off to maximum braking on short stops, there was no evidence whatsoever of bow wave ahead of the braked wheels, said Jackson.

Too, the Convair mats suffered no ill effects during critical 90-degree taxi turns, in spite of the scrub action from the KC-130's landing gear which often causes severe mat damage.

Laying characteristics of the Convair mat concept were simple and fast. The technique of laying a single row the full length, then assigning any number of teams to fill in from the fixed edge, limits laying rate only to available manpower.

Mat removal and replacement was demonstrated with results showing that major repairs can be made in a minimum of time.

The new single tie bar arrangement provides an extremely stable, smooth airfield, said Jackson, with load distribution from any given mat reacted throughout the entire surrounding surface.

GD/E Outlook Topic of Jan. 23 Club Meeting

Outlook for GD/Electronics-San Diego in the year to come will be outlined in a top-level panel discussion at the Jan. 23 meeting of the GD/Electronics Management Club.

John L. Lombardo, general manager of GD/E, and department heads will give the "Division Forecast for 1964," and field questions from the floor.

Catamaran Hotel's Kon-Tiki room has been reserved for the Thursday evening meeting with social hour starting at 5:30 p.m. and dinner (prime rib) promptly at 7.

A surprise feature is being planned, said T. E. Morris, second vice president and program chairman.

Tickets, $3.50 each, now are on sale throughout Plants 1 and 2. They are available, as usual, from departmental representatives.

Figures Given On Deductions

GD/Convair and GD/Electronics people at San Diego may deduct dependent insurance premiums in itemizing medical deductions on their 1963 income returns.

Following are amounts which may be deducted for different periods throughout the year:

All employees, except those represented by EAA bargaining unit—Jan. 1 through Dec. 31, $2.53 per week.

EAA-represented hourly employees—Jan. 1 through Aug. 18, $3.53 per week; Aug. 19 through Dec. 31, $2.53 per week.

EAA-represented flat salaried employees—Jan. 1 through Aug. 25, $3.53 per week; Aug. 26 through Dec. 31, $2.53 per week.

In addition, all employees may deduct one per cent of their first $4,600 in wages, which was paid to the State of California for disability insurance. This amount of $46 is deductible as a tax on both federal and state income tax returns.

Former GD Family Aided at Christmas

Generous GD/Electronics people at Plant 1, San Diego, joined in a drive spearheaded by GD/E industrial accounting, under T. W. Moffett, to help a former GD family at Christmastime.

Cash donations of $75 bought gift certificates for food and clothing. In addition, four boxes of canned goods, two boxes of staples, two boxes of clothing were collected. The parents and each of the seven children, ranging in age from 4 to 17, received two gifts apiece.

GD Retirement Benefit Upped For Salaried

A vastly improved retirement program for non-represented salaried employees of General Dynamics Corporation has been authorized by the Board of Directors, Roger Lewis, president, announced last week. The new program will apply to all divisions except Liquid Carbonic and Material Service, which are covered by separate programs.

The changes will have far-reaching effects throughout the Corporation and update and increase prior accrued benefits, provide more protection against loss of earning capacity, and will cost the individual 50 per cent less, Lewis explained in a personal letter mailed to all employees affected.

The program became effective Jan. 1, 1964, subject to approval of the Internal Revenue Service. Major improvements include reduction of employee contributions by one half; updating and increasing all prior accrued benefits; provision for a permanent and total disability benefit; liberalization of early retirement benefits.

Employee contributions are being reduced from 5 per cent to 2½ per cent of base salary rate in excess of the Social Security wage base (presently $4,800 annually) without reduction of the monthly retirement income earned.

"The retirement benefits of persons who retire or terminate in 1964 prior to IRS action will be determined in the first instance in accordance with the prior provisions of the retirement plan and will be adjusted as required as soon as IRS approval is obtained," A. A. Hendrix, vice president, industrial relations, declared.

In addition to reduction of employee contributions, the improved plan provides for recomputation of accrued benefits on the basis of compensation as of Dec. 31, 1963, rather than the yardstick of previous compensation levels. In most cases this will result in substantially increased ultimate benefits. In this regard, however, special provisions will apply to those who retire within the next five years.

The new program also includes a total disability benefit providing full earned benefits at the time of disability, providing certain eligibility requirements are met.

Early retirement benefits are also substantially liberalized under the improved plan. The reduction in benefit now will be only 3 per cent for each year of early retirement between ages 60 and 65. For those retiring before age 60, the reduction will be slightly more than 3 per cent per year.

The new program further provides for increase in interest rate from 2½ per cent to 3½ per cent on employee contributions.

Provisions of the new plan will be explained in detail in employee meetings in the near future.

Tons of Old Records Discarded To Release Warehouse Space

Tons of old records, obsolete for many years, have been discarded at GD/Convair division, preparatory to setting up a divisional Records Management Program, now in force.

"We could soon be swamped with the ever-increasing volume of paperwork required to operate today," H. L. Henrie, chief of systems and procedures, said. "It is simply a matter of space—and cost—in laying down a 'rule of the thumb' on what is important enough to keep and what is not. We can't allow paperwork to push us out of the 'house.'"

It took several men from systems and procedures about three months to go through all of the old records stored in the Records Center and decide what should be kept and what was no longer of any use. They began sorting last summer.

When they finished the monumental task, 46 tons of records in 3,000 containers were carted away and sold as salvage paper. This house cleaning released at least 3,000 cubic feet of warehouse shelf space for future use.

Now, records control coordinators have been appointed within Convair departments to work with systems and procedures on

(Continued on Page 2)

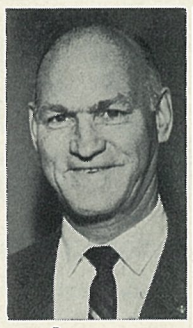
Renovation Program Passes First Phase

First phase in a long-range renovation program at GD/Convair Plant 1 is well under way with the reroofing and replacement of domestic water lines in Bldg. 1, said Vern Sharp, chief of plant engineering.

So far, roofs of Bldg. 51 and Bldg. 35, the low-speed wind tunnel structure, have been resealed. Bldg. 1 overhauling has included resealing of the exterior roof by spraying with asphaltic paint for better protection and replacement of deteriorated metal sheeting; glassing and sealing of drainage gutters; replacement of domestic water lines with copper pipes.

Work will start on roofs and water lines in Bldgs. 5 and 2 within the next couple of months. Plans during this year call for resurfacing of all asphalt areas and concrete aprons in the plant.

GROUNDWORK—Marines at Twentynine Palms, Calif., base try their hand at laying GD/Convair developed landing mats as impact area of base airfield for actual use by military planes. At left and center, four-foot square panels are positioned; at far right is all-over shot of GD/Convair mat strips after connection. First military craft to try out new matting was KC-130 from El Toro base.



Norman W. Reed, Dept. 6-2, wears 25-year service emblem presented to him last month by W. W. Fox, Convair director of engineering.

Awards

CONVAIR

Employee Suggestion awards approved for periods ending Dec. 20 and Dec. 27, 1963.

Dept. 14, F. L. Dewey, $53.60; C. D. Duncan, $20; W. J. Beers and C. R. Yokley (Dept. 131), joint award, $5 each.
Dept. 25, W. T. Toon, $20.
Dept. 48, R. J. Harris, $10.
Dept. 101, L. Budzynski and H. M. Woodard, joint award, $183.15 each.
Dept. 102, J. Butera, $41.60.
Dept. 115, G. C. Archbold, $10; J. P. LaLanne, $10.
Dept. 128, V. Breit, $10; H. T. Cabral, $10; E. E. Hatz, two awards, $10 each; V. L. McKerrihan, $15.60; R. E. Thompson, $21.70.
Dept. 131, R. J. Collette, $10; C. R. Yokley, $10.
Dept. 141, J. L. Moreno, $10.

Cost Improvement Proposals approved for the same periods.

Dept. 93, R. G. Macomber.
Dept. 101, H. A. Mohr and H. M. Woodard, joint proposal.
Dept. 115, F. E. Reed.

Employee Suggestion awards approved for period ending Jan. 3, 1964.

Dept. 27-5, F. L. Pease Jr., $11.20.
Dept. 128, S. H. Delgadillo, $19.10.
Dept. 131, K. R. Abbott, $10.30.

Cost Improvement Proposals approved for the same period.

Dept. 101, H. A. Mohr and H. M. Woodard, joint proposal.

Personals

CONVAIR

We wish to express our deepest gratitude to our Convair and Astronautics friends, especially those in Convair and Astro methods departments, Convair plant engineering, Astro Dept. 835, for their kindness and sympathy, and the flowers and Mass cards received at the death of our wife and mother, Julia B. Hangen.

Milton C. Hangen, Convair Dept. 423
Milton L. Hangen, Astro Dept. 835

* * *

The kind expressions of sympathy from Convair friends is deeply appreciated.
Dick Knapp

Service Emblems

CONVAIR

Service emblems due during the period Jan. 1 through Jan. 15.

Twenty-five-year: Dept. 400-1, R. A. Way.
Twenty-year: Dept. 14-5, L. D. Veall; Dept. 16-4, S. V. Silva; Dept. 42-6, H. C. Leppart.
Fifteen-year: Dept. 6-2, C. F. Kosen; Dept. 25-1, F. J. Olin; Dept. 27-6, L. D. Boyles.
Ten-year: Dept. 6-25, S. B. Stevens Jr.; Dept. 16-1, Joyce V. McGovern; Dept. 25-7, Harry Weninger.

ELECTRONICS

Twenty-year: Dept. 70-00, W. D. Ogilvie.
Fifteen-year: Dept. 21-00, Ivy M. Oliver.

Retirements

CONVAIR

DALPONTE—Abramo, Dept. 14-4. Seniority date May 19, 1952, retirement effective Dec. 31, 1963.
DAMBROSE—Joseph, Dept. 25-2. Seniority date June 16, 1952, retirement effective Dec. 31, 1963.
GAGNE—Violet A., Dept. 14-4. Seniority date April 3, 1952, retirement effective Nov. 4, 1963.
HARTMAN—William R., Dept. 3-1. Seniority date April 4, 1953, retirement effective Nov. 5, 1963.
MURPHY—Elmer T., Dept. 14-8. Seniority date Nov. 17, 1952, retirement effective Nov. 25, 1963.
MUSSELMAN—Don C., Dept. 3-1. Seniority date Aug. 26, 1950, retirement effective Dec. 18, 1963.
PEKOFSKY—Philip, Dept. 6-15. Seniority date April 8, 1941, retirement effective Dec. 31, 1963.
POWELL—Ernest L., Dept. 25-2. Seniority date Sept. 10, 1940, retirement effective Dec. 31, 1963.
SPRINGER—Arnold H., Dept. 141. Seniority date June 10, 1929, retirement effective Dec. 31, 1963.
STAFFORD—Fred R., Dept. 48-54. Seniority date March 2, 1950, retirement effective Nov. 2, 1963.
VINTINNER—Basil H., Dept. 101. Seniority date Dec. 29, 1950, retirement effective Oct. 26, 1963.

Deaths

CONVAIR

RHODES—G. N. Dept. 311. Killed in auto accident on New Year's day in New Mexico. Survived by wife, Eloise.

Tons of Records Are Discarded For More Room

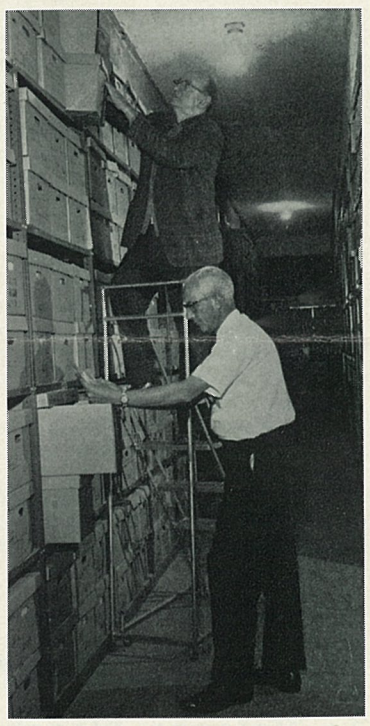
(Continued from Page 1)

records problems. A schedule has been set up for records used in each department to spell out length of time they should be kept actively on file within the department, then how long they should be kept inactive at the Records Center.

Ordinary run-of-the-mill reports are kept from 5 to 7 years. Research and engineering material stays active 10 years; inactive 40. Vital business records, such as contracts, supplemental agreements, permits to do business, contractual requirements are kept permanently.

"We must make this surveillance a continuing program," Henrie said. "Only by constant, orderly check can we achieve our goals: more efficient use of valuable office space; increased ease of filing and information retrieval; assured availability of older records; orderly destruction of obsolete records."

Forms, stocked at the division's stationery stores, must be used for control purposes. Record Storage Request 3490, filled out by department coordinators, sends cartons to the Records Center. Destruction Notice 3491 allows records to be discarded at end of retention period. Both forms are checked and cleared through systems and procedures.



HOUSE CLEANING — Harold Hahn of GD/Convair examines records stored at Records Center, while Bert Begue, archives custodian, pulls out more boxes during gigantic clearance of obsolete paperwork.

Color Prints Offered On Planes, Missiles

Colored prints of several Convair planes have been released for sale through employee services, Bldg. 32, at Plant 1.

Aircraft portrayed includes several views of the F-102A; 440 Metropolitan, R4Y Navy Transport, R3Y Tradewind, XFY-1 Pogo, B-36; Fort Worth's B-58; Pomona Terrier guided missiles.

They are being sold for 10 cents each, as long as they last.

RIBBON CUTTING—GD/E General Manager John L. Lombardo has lots of help in cutting ribbon at formal opening of new GD/Electronics lunch area, back of Bldg. 51, Plant 1. Assistants, from left, are Willadean Ellis; Lyle Wood, manager of material; Fran Plumley; Lombardo; Margaret Brown; H. E. Robinson, manager of manufacturing.

'Good Humor' Wagon Circulating To Deliver Safety Equipment

Safety's "good humor" wagon is back in circulation again through GD/Convair production areas to bring safety equipment to men on the job.

The mobile safety cart, known by such monikers as "taco truck," "ice cream pushcart," is welcomed whenever it wheels into Plant 1 sections to outfit workers with safety items.

It carries a complete line of eye protection equipment: bench-type safety glasses, face shields, acid goggles. These are issued on the spot to anyone who needs them, either new or in exchange for damaged articles. Prescription glasses are checked to see if they comply with the company's safety requirements, and minor repairs are made on glasses.

Also, the cart peddles hard hats, ear plugs and ear muffs.

A few samples of safety shoes are displayed to show the variety on sale at the division's safety crib in Bldg. 32.

M. C. Val Dez, senior safety engineer, says that the cart is a great timesaver, both for men on the line and safety personnel. Now that the safety crib is open mornings only, the roving safety service makes it easier for people to fill their safety needs.

Present plans call for the cart to visit all production areas at least once every three weeks. It will be taken out by special appointment whenever supervisors have enough requests to warrant an extra trip.

Bridge Fans to Play For Master Points

Bridge fans at Convair and GD/Electronics will gather tonight (Jan. 15) for their monthly Master Points play in the Convair executive dining room, Pacific Hwy.

The dates of Master Points nights have been changed to the third Wednesday of each month, reminded Frank Westphal, club president.

General Dynamics players only are eligible to join in the event. Fees are 50 cents per player.

Regular weekly bridge play is open to friends of club members at 25 cents each.

STAMP CLUB MEETS TOMORROW NIGHT

CRA Stamp Club will meet tomorrow night (Jan. 16) in the Convair cafeteria, Pacific Hwy., at 7:30 p.m. High value foreign stamps will be auctioned, said CRA Commissioner Jack Benedict. Next meeting will be back on schedule, the first Thursday of February.

GD/E Relocates To Free Space Within Plant 1

A relocation affecting over 100 GD/Electronics-San Diego people at Plant 1 was completed the first of the year to consolidate related functions and release space for future activities, announced A. E. Degler, GD/E manager of plant engineering.

GD/Electronics has expanded into 10,000 sq. ft. of area in Bldg. 5 on the west side of the main corridor connecting Bldgs. 51 and 5, adjacent to the engineering auditorium.

Now located there are plant engineering people, formerly located in offices on the roof of Bldg. 51; 30 purchasing personnel moved from Bldg. 51 second floor; 18 material control people from Bldg. 51 ground floor; and 20 plans and programs employees relocated from Bldg. 51 second floor.

These functions were moved into the same area to expedite material procurement activities, said Degler.

Another simultaneous move saw production engineering, involving about 40 people, shift to the 2-C area of Bldg. 51. This releases their former location in 2-B for a research and development engineering laboratory to be activated within the next month or so.

SAFETY SALESMEN — From left, Pete Beyrer shows G. W. Vance (Dept. 16) shoe style carried in Convair safety crib, while M. C. Val Dez, senior safety engineer, fits safety hat on Tom Castro of Dept. 131. Other customers lined up at mobile safety cart are Frank Bender, Bill Porter, and W. M. Clapp, Dept. 131 asst. foreman.

Padded Go-Carts Aid Crews Working Inside Stabilizers

C-141 assemblers at GD/Convair scoot up and down through the huge vertical stabilizers on their own special "roller coasters" as they make interior attachments within the narrow tunnels of the empennage parts being built for the Air Force jet cargo plane.

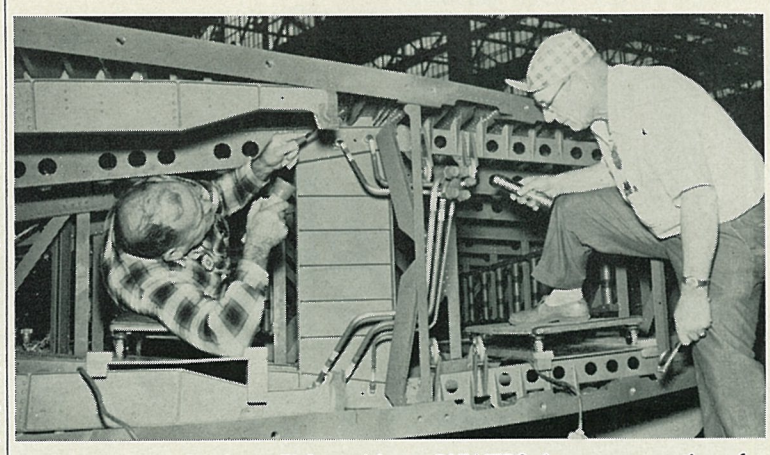
Two padded go-carts rolling on a wooden track within the stabilizer's crawl holes ease the task of men assigned to string tubing and electrical wiring, and attach the ladders and other necessary structures.

The padded creepers, brainchildren of N. P. Pearson, responsible for C-141 production, and E. E. Miller, Dept. 141 assistant foreman, were constructed especially for work within the C-141 stabilizer. Before their creation, the workmen had to crawl laboriously over the metal framework along the 22 feet of the inside channels.

And, there were many aching backs and bumped heads during the time assemblers had to spend within the narrow confinement. It takes around 11 days altogether to make the interior fittings of the C-141 stabilizer—about six for installation of tubing and wiring, and another five to attach the ladders and structures for access to the horizontal stabilizer part and through to the upper surface of the tall C-141 empennage.

Lying on the scooters, men can easily reach up and around as they make attachments and push themselves along effortlessly down the holes, one forward and the other aft of the center spar. Each of the carts is 30 inches long, and they can be used tandem for full prone position.

The crawl holes measure 21 inches across at the manufacturing joint to the Lockheed fuselage and narrow to 18 inches wide at the attachment point of the horizontal tie box.



TIGHT FIT—Reuben Fisher, Navy BUWEPS inspector acting for Air Force, and G. W. Just, FAA designee, use ingenious scooters to propel themselves through narrow channels within C-141 vertical stabilizer at GD/Convair as they check mechanical function.

General Dynamics NEWS

Published by General Dynamics Corporation, One Rockefeller Plaza, New York 20, N. Y.; with editorial headquarters at 3302 Pacific Highway, San Diego 12, Calif., P.O. Box 1950, telephone 296-6611, ext. 1071. Logan Jenkins, editor-in-chief.

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Affiliated editions of General Dynamics NEWS are published in Rochester, N. Y., covering GD/Electronics and Stromberg-Carlson, editorial offices, 100 Carlson Road, HUbbard 2-2200, ext. 2555. Norman Howden, editor; and at Groton, Conn., covering GD/Electric Boat, editorial offices at Groton, HIlltop 5-4321, ext. 300 and 513, Joseph Tracey, editor.

Newly Formed Firm to Seek Space Business

The "wide, wide world of General Dynamics Corporation" gained added international stature earlier this month upon announcement of the formation of a jointly owned company with a leading Belgian electrical/electronics engineering and manufacturing firm.

General Dynamics and the Belgian organization, Ateliers de Constructions Electriques de Charleroi (ACEC), share in creation of the new firm, Etudes Techniques et Constructions Aerospatiales (ETCA).

The new company will operate initially from Charleroi, an industrial center of about a quarter-million population some 40 miles south of Brussels.

ETCA's activities will include design and manufacture of satellites and space tracking equipment, teaming ACEC's production and European marketing experience with General Dynamics' pioneering aerospace technical background—particularly that of its San Diego-based GD/Astronautics division.

Under Sam L. Ackerman, GD/Astro vice president, Astro's electronic programs department, has amassed years of experience in satellite systems, as well as in development and production of its highly successful Azusa and GLOTRAC space tracking systems.

General Dynamics President Roger Lewis, John A. Dundas, Corporate vice president—international, and Ackerman will serve as General Dynamics representatives on ETCA's board of directors.

B. G. Anderson, presently GD/Astro's manager of trajectory measurement and control, will become deputy managing director of the new firm and resident representative of GD/Astro. He will report to Maurice Desirant, managing director.

Desirant is also deputy director of ACEC's electronics division.

ETCA's president will be Paul Delacave of the Belgian firm, with Dundas of General Dynamics as vice president.

ACEC, General Dynamics' European partner in the new effort, is a major producer of heavy electrical equipment on that continent, with products including large turbines, transformers, generators, etc. It is also a major producer in NATO's HAWK surface-to-air missile program.

Organization of the joint Dynamics-ACEC venture has been in progress for about a year. Corporate officials, Ackerman, and J. D. Phelan of GD/Astro systems development department, were involved in the negotiations.

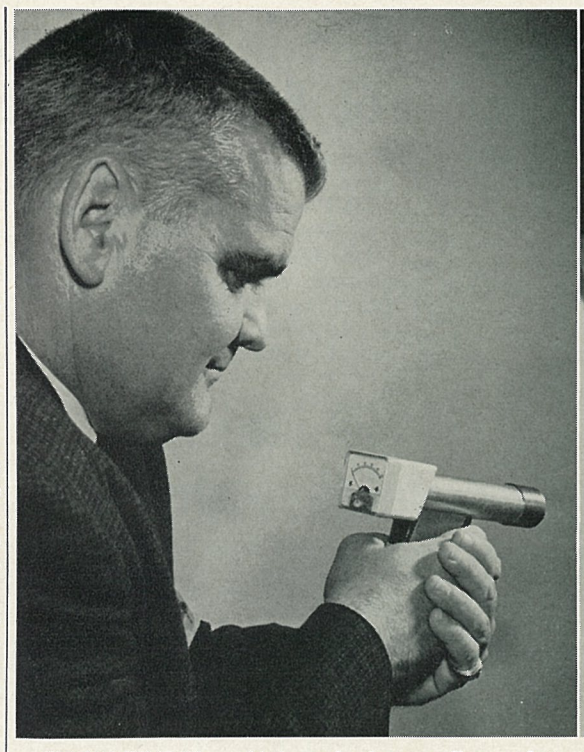
Desirant to Inspect San Diego Facilities

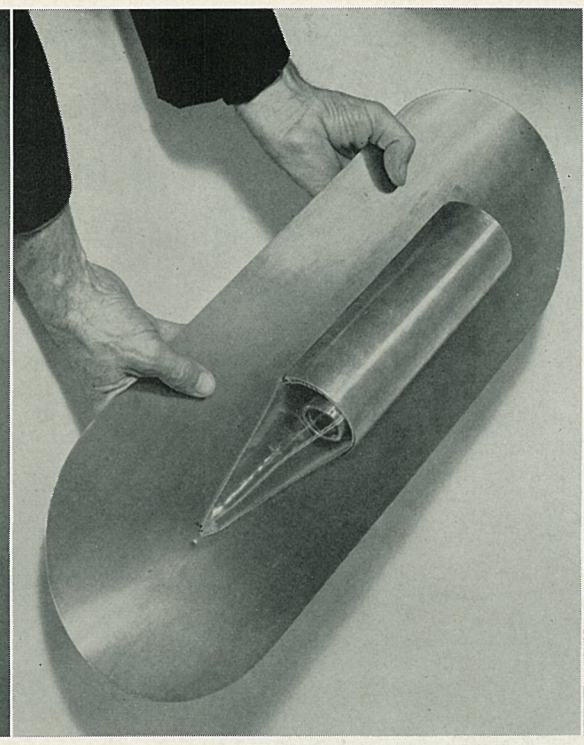
Maurice Desirant, managing director of ETCA, is visiting San Diego this week as guest of Sam L. Ackerman, GD/Astronautics vice president—electronic programs.

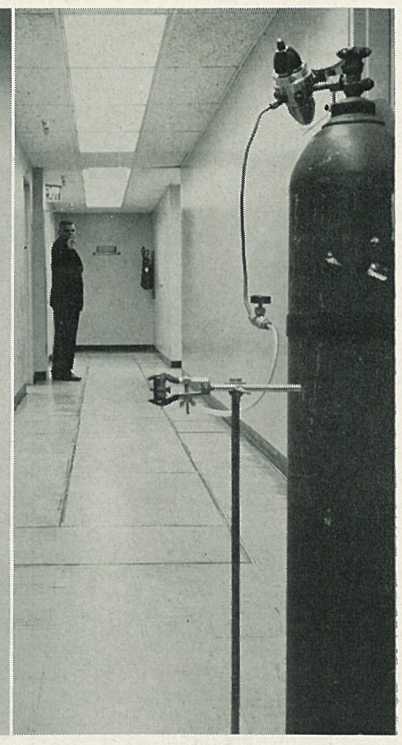
M. Desirant will inspect electronic facilities and installations at GD/Astro, and confer with General Dynamics executives in the area, including John L. Lombardo, general manager of GD/Electronics — San Diego.

EDITOR TO LECTURE ON TRADE WRITING

GD/Pomona employees interested in writing articles for trade publications are invited to a lecture by Alfred Rosenblatt, West Coast editor of Electronic Design, 4:30-5:30 p.m., tomorrow (Jan. 16), Bldg. 3 auditorium. Additional information may be obtained by contacting C. E. Myers, ext. 3210, or A. E. Lambert, ext. 8174, of educational services.







FLAME FINDER — Unique hydrogen flame detector, held at left above by George Carmichael of GD/Astro's Dept. 592-2, and aimed, at right, at invisible burning hydrogen gas, registers presence of flame. In center is mockup of planned missile-borne version to be carried piggy-back to "watch" for fires during flight. Principle is based on infrared discrimination techniques.

GD/Astro's Anderson Shifted to Belgium

B. G. Anderson

B. G. Anderson of GD/Astronautics, selected as deputy managing director of ETCA — new firm established jointly by General Dynamics and ACEC of Belgium — is a veteran satellite and space tracking systems engineer.

He has been with GD/Astro since 1956, and is presently manager of trajectory measurement and control, electronic programs department. At GD/Astro he has been associated with such programs as design and development of the Azusa trajectory measuring system, and the ARENTS satellite.

Anderson holds a BE degree in electrical engineering from Yale University, with graduate work at Columbia and UCLA.

Plans call for Anderson to leave San Diego this month to assume his new duties in Belgium.

McNally Transferred To Electro Dynamic

Joseph T. McNally, cost analyst in the Corporate controllers office in New York City, has been transferred to the Electro Dynamic division at Avenel, N. J., as manager of general accounting.

He is succeeded in New York by John Papachristou, promoted to staff analyst reporting to Richard C. O'Sullivan, director of cost analysis.

McNally has been with General Dynamics since 1960. He received his BBA degree from Pace College, NYC, and prior to joining GD was with United Press International.

Papachristou, a 1959 graduate of Georgia Tech with a BS in industrial management, served as a Naval officer until joining GD in 1961.

Pilot of 456th FIS Logs 1,000 in F-106

B. F. Ferguson, F-102/F-106 project engineer at GD/Convair, was at Castle AFB, Calif., in mid-November to honor the pilot who first piled up 1,000 hours in an F-106.

He presented Capt. E. W. Barnes of the 456th Fighter-Interceptor Squadron with a "Two-Grand Trophy," signifying the pilot's 1,000 hours and the aircraft's own 1,000 hours in the air. Coincidentally, the plane in which Capt. Barnes marked up his 1,000 hrs. was the first F-106 to reach 1,000 hrs. of airframe time.

The trophy was supplied by GD/Convair, builder of F-106s.

GD/FW Engineers Continue Hunt For New High Speed Materials

What will the Mach-busting space ship of tomorrow—operating at speeds of Mach 10 and above—be made of?

A handful of engineers in GD/Fort Worth's structural sciences group tackle this problem daily. And they'll admit the answers are not easy to come by.

"Today's conventional airplane materials, such as steel and aluminum, work all right in temperatures up to several hundred degrees," explained J. E. Burroughs, senior design engineer, "but they can't begin to withstand the high temperatures of of re-entry or hypersonic speeds in the atmosphere."

Accordingly, engineers are exploring the refractory metals—tungsten, molybdenum, tantalum, columbium and various composites—which can take temperatures of 2,500 degrees F. and up. Some refractory metals, for instance, are used in the nose cone and wing leading edges of high-performance planes.

Along with refractory metals, GD/FW engineers are constantly exploring means of coating structures with ablative materials which "peel off" as the vehicle passes through extremely high temperatures.

To do so, they're turning to ceramics—an art which served ancient man's purposes as far back as 1,200 B.C., and promises to serve him even more advantageously in the space age.

"One of our special projects," Burroughs said, "is a double-reverse-corrugated core of columbium, which can withstand temperatures up to 2,500 degrees F.

"Onto this structure we burn a ceramic body, or a foam of alumina, a substance which can take temperatures up to 3,500 degrees F. Then we arc-plasma spray the material with an ablative epoxy coating. This is an organic resin from one-quarter to one-inch thick, depending on the temperatures it will be subjected to."

Burroughs pointed out that without such a coating, even refractory materials would oxidize—literally "go up in smoke"—at temperatures of 5,000 degrees F. and above.

The Air Force is now testing various refractory composites and coatings with a pilotless small-scale hypersonic orbiting vehicle.

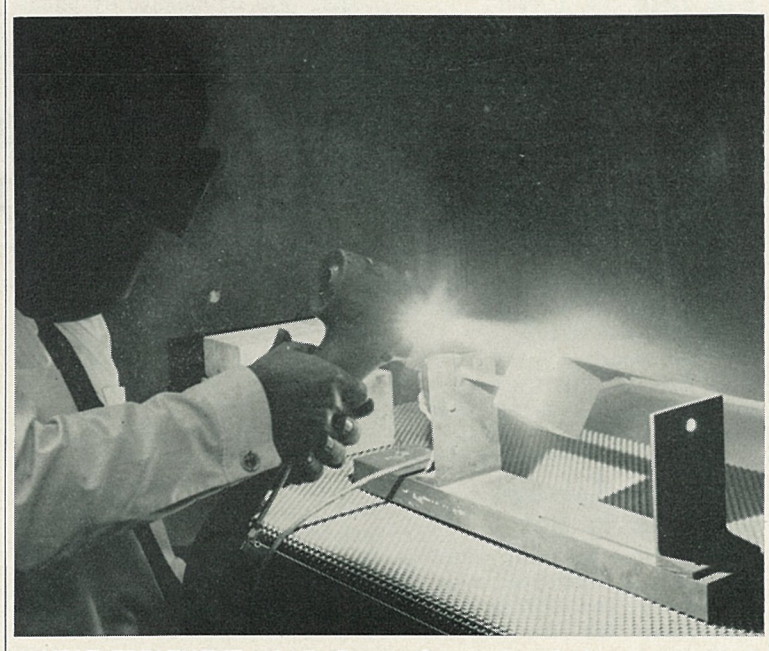
Both industry and government share their experiences with refractory coatings about every nine months through a Refractory Composite Working Group.

Some 90 members of the group started a three-day meeting at GD/Fort Worth yesterday. Representatives were there from a host of firms and institutions, including Air Force Materials Laboratory, National Aeronautics and Space Administration, Naval Ordinance Labs, GD/Fort Worth, Boeing, Battelle Institute, Douglas, GD/Astronautics, GD/Pomona, Illinois Institute of Technology, Lockheed, Lawrence Radiation Laboratory, Martin, Massachusetts Institute of Technology, Ling-Temco-Vought, Picatinny Arsenal, University of Southern California, and Watertown Arsenal.

GD/Astro Men Pass California Bar Exam

Three GD/Astronautics men have been notified they successfully passed the California State Bar Examinations last August.

Olen O. Woods (Dept. 953-2), Jack P. Kelly (Dept. 032-3) and Tom M. Heim (Dept. 512-3) graduated with law degrees from the University of San Diego last June. Each had attended classes in the evening while holding day shift jobs at Astronautics.



HEAT TREATMENT—J. E. Burroughs, senior design engineer, is shown arc-plasma spraying refractory metal on ceramics.

Simple Device Detects Deadly Burning Gases

A simple and effective device which may be one of the first of its kind to help detect the deadly and invisible flames of burning hydrogen gases has been developed within GD/Astronautics optics and lasers group.

G. W. Carmichael, Dept. 592-2 design specialist who was responsible for the flame detector's design emphasized:

"Gaseous hydrogen is particularly dangerous since its flame can not be seen in daylight and a man could walk right into a consuming blaze without realizing it was there.

"With the increasing use of liquid hydrogen, which is used to fuel Astro's Centaur space vehicle, it becomes imperative to have an instrument which will indicate the presence of a hydrogen flame, just as it is now accepted safety practice to use radiation indicators wherever radioactive materials are in use."

The detector's ability to detect a hydrogen flame at practically any distance is based on infrared discrimination techniques, explained Carmichael.

Presence of a hydrogen fire is indicated on a voltage meter at the base of the sensitive device, which in its demonstration version closely resembles a "ray gun." The detector has a wide operating range—even the prototype can easily sense a one-inch hydrogen flame at 100 feet. And, it can be designed to cover an entire hemisphere or a needle-fine field of view.

S. H. Logue, who heads the Astro optics and lasers section, points out that other attempts have been made to sense burning hydrogen, but "this device could prove invaluable during any phase of missile operations where liquid hydrogen is used."

Specifically, some of these areas would be during testing of engines, fueling at missile launching sites, or on actual spacecraft flights.

In fact, a miniaturized missile-borne version of the device now is in the works. It is designed for use within the craft to keep hydrogen handling systems under surveillance or to ride piggy-back on the outer skin to "look" for fires. Information registered on the device would be relayed back to ground control centers over normal telemetering equipment aboard.

Other Astro engineers contributing to the project are D. F. Behrendt, test and evaluation; E. L. Casco, mechanical design and fabrication; L. C. Wilson, head of optical design. The optics and lasers group is a part of Astro's applied research department under Dr. V. A. Babits, manager.

ON THE SLOPES—Pictured at Mammoth (which ARA Ski Club visited over Christmas) are (top photo) Loyal Huddleston, Gerry Foodman, LaVonne Martinez, Connie Varonfakis, Mary Lou Hill, Helen and Gene Rockafeller, Charlie Hill. In lower picture Mary Lou and Connie go up slope via T-bar.

Skiers Enjoy Three Resorts on Holidays

Twenty-seven GD/Astro folk made a "grand tour" of leading ski resorts over the five-day holiday at year-end, during an ARA Snow Ski Club trip which took them to Mammoth, Squaw Valley, Alpine Meadows and back to Mammoth.

The outing followed an earlier weekend trip to Big Bear in which 45 ski enthusiasts took part.

The club has scheduled other trips at modest rates, running into April.

At its meeting Jan. 8, the group sponsored a ski equipment swap session; showed movies made on earlier outings.

San Diego Quality Society to Convene

American Society for Quality Control, San Diego section, will host a two-day program at Ocean-House, Jan. 17 and 18, featuring a presentation on newly revised government quality program requirements.

Comprising a government panel will be representatives of DOD, Air Force, Navy, Army, and Defense Supply Agency. An industry panel on quality management will also make a presentation.

San Diego section officers are all General Dynamics men. M. R. Seldon, GD/Astro, is chairman, L. C. Stuckey, GD/Convair, vice chairman, and L. I. Frederickson and H. H. Mishler, both GD/Astro, are secretary and treasurer, respectively.

Spring Semester Enrollment Opens

Enrollment for spring semester classes at San Diego Junior Colleges began this week and will continue through Jan. 21.

Registration for all students at SD City College, Evening College, or Mesa College will be in the Admissions and Operations Center, 835 12th Ave. from 9 a.m. to 2 p.m. for day students and from 5 to 8 p.m. for evening students.

New students start to enroll Jan. 24. Classes begin Wednesday, Feb. 5.

Garden Clubbers Get Discounts

The joint ARA-CRA Garden Club has completed arrangements with Walter Anderson's Nursery, 3860 Rosecrans, for General Dynamics employees to purchase rose plants at 25 per cent discount.

Eligible are all employees of GD/Astro, GD/Convair, GD/E, General Atomic and Liquid Carbonic. Purchasers need not belong to Garden Club.

The nursery handles only top quality plants, trimmed and ready for planting, and full instructions on planting will be provided at the time of purchase.

Special order forms and price lists are available from employee services outlets at GD/E, GD/Convair and GD/Astro. Use of these forms is preferred, although employees may receive the discount simply by presenting General Dynamics identification at the nursery.

Additional information is available from ARA Commissioner Everett Henderson, GD/Astro ext. 2236.

Disability Tax Bite Will Rise in 1964

General Dynamics people in California will find a larger bite taken out of their salaries this year with the increase of the wage base for contributions to disability insurance.

Tax rate on employees' wages remains at one per cent, but it will be deducted from the first $5,100 earned in 1964, instead of the former base of $4,600. Thus, the tax paid for the year will be raised from $46 to $51.

Simultaneously, commencing with Jan. 1, 1964, maximum weekly disability benefits were increased from $75 to $77.

Saturday Salvage Schedule Is Set

Alternating Saturday morning schedule for employee sales at GD/Convair and GD/Astro salvage yards for the next four weeks is:

GD/Convair—Jan. 18, Feb. 1.

GD/Astro—Jan. 25, Feb. 8.

Industry Night Reset, Tickets Put on Sale

"Convair Industry Night" has been rescheduled for Jan. 28 by the sponsoring group, San Diego Section, American Institute of Aeronautics and Astronautics.

The meeting, first in a series spotlighting San Diego industries, originally set for Nov. 22, was cancelled at the death of the late President Kennedy.

The dinner meeting will be at the Torrey Pines Inn, with social hour at 6:30 p.m., dinner at 7:30, and program at 8:30.

GD/Convair President J. H. Famme will discuss the division's present progress and planning for the future. W. W. Fox, director of engineering, will talk on Convair's research and development programs and J. B. Hurt will outline the Little Joe II launch vehicle program.

Chairing the session will be Capt. N. R. Richardson, USN, chairman of the SD Section.

Reservations at $4 a ticket must be made by noon on Jan. 27.

Convair and GD/Electronics people may get tickets from E. E. Patrick or Gordon Glass, at ext. 2384, Plant 1.

Astro contacts are: John Hartsfield, ext. 2006, Bldg. 19, Plant 1; John Kalogeris, ext. 1591, Plant 19; Robert Batten, ext. 2857, Plant 71.

JUNIOR SHOOTING PROGRAM OFFERED

A shooting program for juniors (under 19) is being offered by Astro Rifle Club to provide guidance and training for young rifle fans who are sons or daughters of GD/Astro, GD/Convair or GD/E employees.

A parents' meeting for discussion of the program will be held in ARA Clubhouse (east of GD/Astro main plant) at 7:30 p.m., Jan. 20.

The junior club, known as "Astro Rifleers," is being organized and is affiliated with National Rifle Association. Teams for competition shooting with other area junior groups are being formed, and winners will be eligible to participate in NRA state and national shoots.

Activities are coordinated by Bob Andrews, ARA commissioner, and firing is conducted at CRA's Gillespie Field Range.

GD People Invited To Quality Meeting

M. R. Seldon, assistant to the director of reliability control at GD/Astro, has invited interested General Dynamics folk to attend the Feb. 10 meeting of San Diego section, American Society for Quality Control.

Seldon is section president.

The session will be held in the Don Room, El Cortez Hotel, with social hour at 6 p.m., dinner at 6:30, and business meeting at 8. The subject, "The Finance Organization Views Quality Control Costs," will be handled by panelists from San Diego chapter, National Association of Accountants.

Five In-Plant Courses Offered GD Folk by Convair Begin in Feb.

Registration is open now for five in-plant courses offered by GD/Convair educational services to General Dynamics people at San Diego locations during the spring semester beginning the first week in February.

Four accredited courses in technical writing are scheduled in conjunction with the San Diego Junior Colleges certificate program. Other technical writing courses in the program are available on-campus at SD City College, Russ Blvd.

Classes to be held within Plant 1 in Bldg. 14 are: Intermediate Technical Writing, Mondays, 4:30-7:30 p.m., Classroom 8. Louie Henderson of GD/Convair, instructor. Technical Writing Workshop, Tuesdays, 4:30-7:30 p.m., Classroom 8. Henderson, instructor. English for Technical Writers, Wednesdays, 4:30-7:30 p.m., Classroom 8. Irvin Litchfield of Astro, instructor.

Offered for the first time is Technical Proposal Writing with Marvin Feuerborn of Astro, instructor. It will be taught Tuesdays, 4:30-7:30 p.m., in Classroom 7.

Fifth course is Basic Electricity, Mondays, 4:30-7:30 p.m., Classroom 7. Ken Theilig, Astro, instructor.

All courses will run 18 weeks, through the middle of June.

Registration may be made by calling GD/Convair educational services office, ext. 491, Plant 1.

Forms, available in the educational services location, Bldg. 15, and in Bldg. 5 engineering library, may be filled out and mailed to educational services, said Wayne Turner, coordinator.

GD Men Join Cal Faculty

General Dynamics men at San Diego-located divisions who will be members of the faculty during the spring semester of the University of California Extension include 11 from Astronautics, six from General Atomic, and two from Convair.

They are: Astronautics—Raymond Elliott, design specialist, who will teach a course "Introduction to Electronic Digital Computing Systems." Carl G. Erickson, design specialist, coordinator of Mechanical Engineering Review, with Robert M. Kuhns, assistant project engineer, and Philip J. Swanson, assistant project engineer, instructors. Ernest Hamilton, senior electronics engineer, coordinator of Electrical Engineering Review, with James J. Fithian, electronics group engineer, and Richard K. Walter, GD/Convair design specialist, instructors.

James F. Haskins, staff scientist, "Advanced Engineering Mathematics." Cyril H. Nute, design specialist, "Advanced Engineering Mathematics." Douglas L. Platt, space and weapon system program analyst, "Fundamentals of PERT Planning and Control" and "Advanced PERT." Theodore Rubin, design specialist, "Probability and Statistics." Bruno F. W. Witte, design specialist, "Numerical Methods in Algebraic Problems."

Besides Walter, the other Convair faculty member is Nicholas Van Dorn, design specialist.

General Atomic instructors will be: Morton A. Fineman, research and development staff, "Molecular Beam Chemistry." Tomas E. Firle, research staff. Eugene Haddad, research and development staff, "Nuclear Physics." Jerome Kohl, coordinator of special products, and Lloyd R. Zumwalt, senior research advisor, "Measurement and Use of Radiation and Radioisotopes." James Watson, research and development staff, coordinator of lecture series, "Horizons in Space Biosciences: Exobiology."

Magnuson Is Speaker At Quality Meeting

W. E. Magnuson, chief of publications quality assurance at GD/Astro, discussed quality control of technical data at this week's meeting of San Diego Section, American Society for Quality Control.

Magnuson was a guest speaker at the Jan. 13 session sponsored by Straza Industries. Theme of the program was "Material Control in the Space Race."

DYNAMICS PRODUCTS TO GO ON DISPLAY

General Dynamics aircraft and missiles used by the North American Air Defense Command figure among displays open to the public this week during San Diego's "Aerospace Defense Week."

Convair-built F-102 and F-106 interceptors; Terrier and Tartar guided missiles built by Pomona division; aerospace products of Astronautics; and, probably, a nuclear-powered submarine, built by Electric Boat, are scheduled for exhibit.

Indoor exhibits are housed in the Aerospace Museum on Balboa Park's Zoo Drive, with full-size aircraft and missiles located on the parking lot next to the Zoo. Submarines, if open to public tours, will be in San Diego Harbor. Displays may be seen all week from 10 a.m. to 4:30 p.m.

San Diego Junior Chamber of Commerce is sponsoring the Jan. 12-19 aerospace observance.

Family Swim Night To Resume Feb. 15

First family swim night of the year will be Feb. 15 as CRA resumes its monthly schedule of free swimming sessions at Mission Beach Plunge.

The Saturday night swims were cancelled during the last three months while the plunge was receiving its annual overhaul.

Tickets will be available at Convair employee services.

GD Communicators Will Confer Today

Communications specialists from Western General Dynamics divisions will meet today, Jan. 15, for a one-day exchange of ideas at Vacation Village, San Diego.

Pacific Telephone and American Telephone and Telegraph are sponsoring the gathering. Representatives from General Dynamics/Pomona, Astronautics, Convair, Electronics-SD, General Atomic, and Fort Worth have been invited.

Jack Malone Named Cafeteria Manager

Jack Malone is new manager of Convair cafeterias for the Prophet Co., effective the first of this month, announced W. E. Rickman, district manager.

Malone, former assistant manager for the Prophet Co. at Astronautics, succeeds C. C. Jacobs who has been promoted to manager of cafeteria operations at the Pomona division.

'Winter Weekend at Big Bear' Reservations Being Accepted

This year's "Winter Weekend at Big Bear Lake" sponsored by General Dynamics Ice Skating Club is scheduled for Feb. 7, 8 and 9, with reservations now being accepted at GD/Astro, GD/Convair and GD/E employee services outlets.

The club has reserved the entire Wawona Lodge at Big Bear for the event, offering rooms with bath for 2, 3, 4 and 5 persons, and 18 cabins for groups of 3 to 12.

Two ranch-style breakfasts and one dinner will be catered by Gil Hutter, manager of Prophet Co. cafeteria at GD/Astro, who will also serve the club's traditional Saturday night pizza snack.

Activities will include skating, skiing, winter sports and a Saturday night dance.

Total cost of the trip is $12 per person, including two nights' lodging and three meals. Children under 8 are charged half price. Participants will be asked to provide their own transportation.

"Drivers are cautioned to bring tire chains and emergency equipment," cautioned Bud Davies, commissioner.

The event is limited to 100 persons, and early reservations are advisable. All arrangements must be firm by Jan. 31. More information is available from Davies, or Barbara Gilliland, GD/Astro ext. 4041.

HOLIDAY TIME—Nearly 600 GD/Electronics people at San Diego gathered for the all-division Christmas dinner-dance at Hotel del Coronado Dec. 23. At far left is General Manager John L. Lombardo (seated foreground) surrounded by (from left) George Oatman, dance committee chairman, Mrs. Oatman (seated), Mr. and Mrs. J. P. Syren. At right is shot of committee heads in charge of arrangements: Ken Farnsworth, Shirley Palmore, Ernie Paul, James Wheeler, Peggy Tracy, Oatman.

Garuda 990As Are Christened

"Uncatchable" 990As, as Garuda Indonesian Airways advertises its speedy Convair jetliners, now bear historic Indonesian names following official christening ceremonies Dec. 10 at Djakarta, capital of the island country.

"Majapahit," ancient name of a 13th century East Java kingdom, is the title bestowed upon the first Convair 990A to go to Garuda. The second 990A, which arrived at its new home in mid-November, is now designated "Sriwijaya," name of another former kingdom on the island of Sumatra.

Doing the honors was President Sukarno's wife who released the cluster of red and white balloons supporting the covering banners, reported GD/Convair eye-witnesses. Convair customer service representatives assigned to Garuda for maintenance engineering support are Dave Weitzman, Phil Smith, and Court Zeiss.

Convair pilots A. P. Wilson and Sherman Johnson, and flight engineers Ludy Knudsen and C. J. Falkenthal, are coordinating pilot training as the two 990As alternate in passenger service and training duties.

The jet airliners now are flying over Garuda's wide-flung network connecting Djakarta with Tokyo, Hong Kong, Manila, Bangkok. With the arrival of the third 990A early this year the service may be extended to Pnom Penh in Cambodia, Rangoon in Burma, and Cairo, Egypt.

Dance Cancelled To Help Needy

GD/Convair material and production services departments, under G. W. Zahrte, made Christmas a lot more merry for several needy families this year.

The 358 people in Depts. 4, 14, 34, 42, 43, 44 cancelled their annual Christmas dance to help five families of nine adults and 25 children.

They donated $674 and quantities of canned goods and clothing. The cash went for gift certificates for clothing and toys for each member of their adopted families and a week's supply of groceries. Each basket contained a turkey for Christmas dinner. The Salvation Army distributed the Convair gifts.

Lombardo Speaks To Business Women

John L. Lombardo, general manager of GD/Electronics-San Diego division, was featured speaker last night (Jan. 14) to San Diego Charter Chapter of the American Business Women's Association.

At the meeting held at Harold's Fifth Avenue Restaurant, Lombardo indicated business trends expected within GD/E during the next 5 to 10 years, the anticipated volume, and programs in view.

Cecile Hoyle of GD/E procurement planning section made arrangements for the session as chapter program chairman.

Sports & Recreation

CRA Calendar

(Convair Recreation Association has some 40 activities in operation for Convair and Electronics people. For information call CRA headquarters, ext. 1245, Plant 1.)

★ ★ ★

AEROMODELERS — Flying sessions Saturday and Sunday mornings, 8 a.m. to 1 p.m., Clairemont Mesa Flying Site.

BASKETBALL—Second round of "slow break" plant tourney opens Jan. 21, Muni Gym, Balboa Park.

BRIDGE CLUB—Master Points play tonight (Jan. 15), 7:30 p.m., Convair executive dining room, Pacific Hwy.

CAMERA CLUB — Regular CRA-ARA meeting Jan. 19, 7:30 p.m., Photo Arts Bldg., Balboa Park.

COIN CLUB — Installation of officers tomorrow (Jan. 16), 7:30 p.m., Convair cafeteria, Pacific Hwy.

FENCING—Workouts and instruction each Friday, 7-10 p.m., YWCA, 10th & C Sts.

FISHING CLUB—Meeting Jan. 21, Gillespie Field Clubhouse. Potluck at 6:30 p.m., business meeting, 7:30.

GUN CLUB—General Dynamics parents' meeting Jan. 20, 7:30 p.m., ARA Clubhouse, to plan junior rifle shooting program.

ICE SKATING—Thursday ice skating sessions at Mission Valley Ice Plaza, 6:30-8 p.m. Outing to Big Bear Feb. 7-9. Reservations taken until Jan. 31 at employee services, Bldg. 32, Plant 1.

MOVIES—Reduced prices for General Dynamics people at State Theater, Euclid and El Cajon Blvd. General admission: adults, 75c; children, 25c.

PISTOL CLUB—Regular shoot Jan. 26, 9:15 a.m., San Diego Police Pistol Range, Federal Blvd. and Home Ave.

RADIO CLUB—Next meeting Jan. 23, 8 p.m., Harbor Drive club headquarters.

ROAD RUNNERS — Meeting Jan. 16 Gillespie Field Clubhouse. Next weekend outing Feb. 8-9 to Peg Leg Monument.

ROCKHOUNDS — Lapidary workshop at Gillespie Field open Wednesday evenings, 7-9 p.m.

ROLLER SKATING — Free tickets at employee services for General Dynamics skate night Jan. 20, at Skateland, Front and G Sts.

SNOW SKI CLUB—Call Joe Harris, home phone 284-0278, for information on coming outings.

SOLO FLYERS — Ground school classes Thursday nights, Jim's Air Service, Lindbergh Field.

SQUARE DANCING — Registration open for new instruction class. Call CRA office, ext. 1245, Plant 1.

STAMP CLUB — Meeting tomorrow (Jan. 16), 7:30 p.m., Convair cafeteria, Pacific Hwy.

WATER SKI CLUB—Skiing weekends on Mission Bay on phone-call basis. Call Gene Sevigny, ext. 2701; Jack Loos, ext. 2456, both Plant 1.

Coin Club to Greet Officers For 1964

Newly-elected officers of CRA Coin Club will be seated at tomorrow's (Jan. 16) meeting at 7:30 p.m. in the main Convair cafeteria, Pacific Hwy.

Pearl Johnson will accept the gavel from retiring president, John Barrett of GD/Electronics. Others elected Dec. 19 were: George Stewart of Convair Dept. 6, vice president; F. B. Wagner of GD/E, secretary; and M. H. Monroe of Convair Dept. 16, treasurer.

The usual coin auction will be held and a coin valued at approximately $5 will be raffled. Refreshments will be served.

GE/E TEAM UNBEATEN IN CRA SLOW BREAK

GD/E Material was still undefeated in first half CRA "slow break" basketball play after Jan. 7 competition when it downed Product Service, 33-26.

Material boys are leading with a record of 4 wins, no losses, and 310 Pubs and GD/E Chargers tied at 3 and 1. Final first-round games were scheduled for last night.

Other Jan. 7 results were: GD/E Chargers over Hi-Lows, 42-24; Pubs winning from Data Processing, 37-14.

Second half of the plant tourney starts Jan. 21 on Muni Gym courts with Hi-Lows matched against Product Service; Data Processing vs. GD/E Material; GD/E Chargers playing Pubs. Game times are 6:50, 7:55, and 9 p.m.

Gymnasts Tickets On Sale at Bargain

General Dynamics people at Plant 1 may see an outstanding gymnastic performance at half price by buying tickets in advance through Pete Beyrer, CRA headquarters, Convair employee services, Bldg. 32.

Discount price to the Danish Gymnasts showing at Cal Western Gym on Feb. 12 at 8 p.m. is $1. Performance is sponsored by San Diego City Schools.

Resumption of Square Dancing Instruction Being Considered

First square dancing instruction in more than a year is in the offing for Convair and Electronics people as CRA asks for a show of hands.

The activity, suspended since fall of 1962, is being revived by popular demand as renewed interest has been expressed throughout Convair and GD/E, said Commissioner Maury Scholz.

A new square dancing class will start in February if enough sign to make it worthwhile, said Scholz.

Everyone interested is asked to call CRA headquarters, ext. 1245, Plant 1, or Scholz at his home phone 295-3806, immediately so that arrangements may be made for a location and instructor.

The course, open to beginners and all who wish to brush up on their do-se-does, will run one night a week for 20 weeks. A professional caller will be obtained to instruct.

CRA's square dancing group was organized in 1949 and over the years has proved one of the most popular of all recreational activities. Hundreds, probably thousands, have graduated from beginners classes to become full-fledged Hoedowners, as the CRA group calls itself.

Scholz has directed the Hoedowners as commissioner since 1959, succeeding P. E. Liggett. Long-time CRA commissioner, Marty Stutz, now heads Astronautics' active square dancing organization.

Each year square dancers from Convair, GD/E, Astro, and Pomona divisions join for an all-General Dynamics Hoedown which draws hundreds of fans to either Pomona or San Diego locations.

Until the CRA group suspended operations a year or so ago, two beginners classes were held each year, spring and fall, and weekly intermediate and advanced dancing sessions were scheduled in the American Legion Hall each Tuesday night.

Road Runners Gather At Christmas Party

Nearly 70 Road Runners and their families gathered for the CRA group's annual Christmas party Dec. 20 at Gillespie Field Clubhouse.

Mrs. Rolland Lathrum, in charge of arrangements and master of ceremonies, introduced a variety show put on by residents of the Lincoln Acres area, near National City. Numbers included pantomimes, hula and tap dancing, singing, and a skit.

Santa Claus, looking much like Ralph Hammack, retired from Convair Dept. 14, distributed gifts to all. Bill Hamilton was lucky winner of the ham donated by CRA. Carol singing and refreshments completed the evening.

Assisting Mrs. Lathrum was her sister, Mrs. Orpha Gretler.

Members will gather tomorrow night, Jan. 16, at the clubhouse for their regular meeting when plans will be discussed for the coming outing, Feb. 8-9, to Peg Leg Monument in the Borrego Springs area.

Joe Sopko is wagonmaster with Rolland Lathrum, assistant.

Reduction Offered On All-Star Tickets

Football fans may still pick up discount exchange coupons at Convair employee services to the AFL All-Star game set for this Sunday (Jan. 19).

Coupons are good for $1.10 reduction on $5.50 seats; 70 cents on $3.50 seats; or 50c on $2.50 general admissions. They must be presented for seat tickets by Friday (Jan. 17) at the All-Star ticket office, Lafayette Hotel.

Dollars Rain On Golf Links

A shower of silver dollars, $58 worth, rewarded about 20 accurate (or lucky) linksmen at a "target shooting" tourney Jan. 4 at Bonita Valley Country Club.

Among winners at the first combined Convair and Electronics Management Clubs golf event were division heads, J. H. Famme of Convair and John L. Lombardo of GD/E.

Other Convair golfers taking home dollar awards were Warren Feddersen, Bill Matlock, Logan Jenkins, M. C. Val Dez, Fred Bettinger, Emmett Williams, Russ Davis, Roy Sommers, C. R. Maikish, J. T. Mitchell, Jerry Swarts.

GD/E winners included Bob McStay, Ellsworth Henderson, A. S. Freedman, Fred Hamann, V. J. Stubbs, Ernie Paul.

The tourney drew 100 contestants from the two clubs.

Terry Kell, tournament chairman, was assisted by his wife as judge, paymaster, assistant starter. Other committee members were Swarts of Convair and Henderson of GD/E.

Reservations Close Jan. 16 on Snow Trip

A full schedule of events is in store during the next few weeks for Convair snow skiers as they join with Don Diego Ski Club in outings to mountain slopes.

Reservations close tomorrow (Jan. 16) for a one-day bus trip to Snow Summit this Saturday, Jan. 18. Bus leaves Astro north parking lot at 6 a.m. and returns from Snow Summit at 5:30 p.m. Bruce Barr, 232-7451, is taking reservations.

Another group has already signed for a full weekend of skiing at Big Bear Lake this Saturday and Sunday, said CRA Commissioner Joe Harris.

Still open is a weekend trip to Mammoth over the weekend, Feb. 1-2, with reservations to be made through Barr before Jan. 27. Transportation, lodging, two breakfasts, and a steak dinner cost $20 each.

Search For 'Kamikaze' Defense Led to Creation of Pomona Div.

(Following is the second in a series of articles dealing with history and products of a particular General Dynamics Corporation division, to remind readers of the vast extent of General Dynamics activities.)

Officially established as an independent division on March 1, 1951, the roots of Pomona Division of General Dynamics actually go back to 1944 and a Navy project to find a weapon capable of defense against Japanese suicide plane ("kamikaze") attacks on U. S. warships during World War II.

Studies made in 1944 led to the belief that an ideal anti-aircraft weapon would be one capable of homing on piloted aircraft. Early in 1945 the Bureau of Ordnance (Navy) enlisted the aid of the Applied Physics Laboratory at Johns Hopkins University.

Overall technical direction of an early application of what is now called the "weapon system concept" was assigned to APL which in turn selected associated contractors in many fields: pure research, electronics, explosives and the like. Convair was chosen to carry principal airframe responsibility and had a collateral role in the ramjet burner development.

Work on two types of airframes was carried on at Vultee Field under the direction of C. R. Irvine, chief engineer.

FIRST MISSILE FIRINGS "FIZZLES"

Analysis of aerodynamic data was completed in August and the first missile sent to APL in October. First two firings on the East Coast were not very successful but a third one launched at the new Naval Ordnance Test Station near Inyokern, Calif., in January, 1946, was moderately so. By March of that year a "fully successful" firing heartened engineers and the slow painstaking development and refinement followed. The STV-1 series was followed by STV-2 series (first fired in August, 1947) and the early STV-3 which was first fired April 8, 1948.

A spectacular breakthrough by the contracting team solved the aerodynamic and control problems so well that BuOrd and APL decided to convert the STV-3 into a tactical weapon without waiting for perfection of the ramjet motor. Thus the Terrier missile system was born.

By 1950 the experimental designs had reached a state of success that warranted a major scale production to build up the nation's guided missile arsenal. Manufacturers were requested by Department of Defense to submit a proposal to achieve two objectives: production of a quantity of Terrier missiles and the establishment of a Navy Industrial Reserve Ordnance Plant capable of such production. Verbal acceptance of Convair's proposal was made Jan. 8, 1951, and the Guided Missile Division established March 1, 1951.

Personnel assigned by the parent plant in San Diego proceeded with activation of Plant 2, a rental facility which had been used by Convair during World War II and subsequently found excess. This group established the facility layout and machine requirements for the embryo production operation.

SITE IN POMONA CHOSEN FOR PLANT

The complexity of the project was so great that emphasis was placed on the prompt separation of personnel associated with it from parent Plant 1 management structure, creation of a new division charged with San Diego production problems, and selection of a site for construction of the Naval Industrial Reserve Ordnance Plant.

A site in Pomona, Calif., was chosen and the Navy purchased land on April 4, 1951. Ground was broken on Aug. 6, 1951. While new plant construction was in progress, facilities at Los Angeles County Fairground and in downtown Pomona were used. Construction progressed to the extent that the Engineering Building (Bldg. 4) was ready for occupancy on Aug. 25, 1952. Personnel moved in and six days later, Sept. 1, initial manufacturing operations were started in that building.

As rapidly as other buildings were completed, people were added to the work force by transfer from San Diego or recruited locally. Despite the confusion of this period, Pomona production continued, and the first missile was accepted by the Navy at Pomona in January, 1953.

While early work at Pomona centered on Terrier and its support equipment, later programs have included Tartar and Advanced Terrier for the Navy, Redeye for the Army and Marine Corps and Mauler for the Army. These programs have helped establish the Pomona Division as the nation's leading development and production facility for tactical guided missile systems.

First lot of Terrier missiles produced at Pomona was accepted by the Navy on April 29, 1953. First successful shipboard launching of a high explosive warhead missile from this lot was achieved from USS Norton Sound five days later, May 4, 1953.

MISSISSIPPI USED FOR FIRST TESTING

Early tactical testing of Terrier was conducted aboard USS Mississippi. The cruiser USS Boston was recommissioned and from its deck the first active Terrier was launched in September, 1956. Three months later the USS Gyatt was recommissioned and armed with Terrier, becoming the first guided missile destroyer in the world.

Research and development on Advanced Terrier design proceeded simultaneously with development of the original Terrier. R&D contracts for the improved version were awarded to GD/Pomona in 1951 and 1953 and in 1956 the first Advanced Terrier pilot line missile contract was awarded. By 1959 initial production began.

The Navy constructed and commissioned cruisers and destroyers to carry the new weapons. Today a total of 26 warships are armed with original Terrier or Advanced Terrier.

Both Terrier and Advanced Terrier are beam-riding missiles powered by solid-fuel rockets. A booster supplies initial high thrust, accelerating the missile to supersonic speeds, then drops away. The sustainer, a part of the missile proper, maintains velocity to target intercept.

Both missiles (with boosters) are about 27 feet in length and approximately one foot in diameter. Advanced Terrier also has surface-to-surface capabilities that can be used against shore installations and other surface targets.

Next need of the Navy was for a more compact supersonic guided missile for anti-aircraft protection of destroyer-type ships. The answer was Tartar and first engineering contract for this missile was signed in December, 1955.

First Tartar production missile was delivered to the Navy in May, 1959, and early testing was conducted aboard the USS Norton Sound. Late in 1960 the missile became operational with the commissioning of the USS Charles F. Adams. Since that date 18 destroyers have been especially built to carry Tartar, which also serves as secondary battery aboard two cruisers.

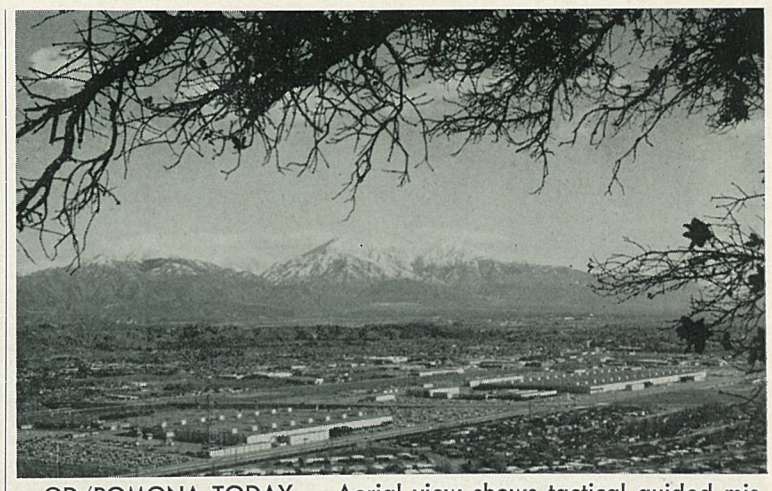
Tartar is a supersonic homing missile designed to serve as an anti-aircraft shield against both low and high-flying aircraft. Measuring 15 feet long, the missile contains a dual thrust rocket motor. The homing guidance system is made up of several interrelated units constructed so they form the basic airframe of the missile.

ARMY BECOMES POMONA CUSTOMER

A solid-fuel, dual-thrust rocket motor was designed and developed to achieve the desired size reduction for this missile. Tartar receives initial thrust during a short burning period that launches and accelerates the missile to supersonic speeds. Then a lower-thrust, long-duration burning period maintains this high speed to target intercept.

In the past few years two weapons for the U. S. Army have been under development at Pomona. One is the shoulder-fired Redeye missile designed for infantrymen of both the Army and U. S. Marine Corps. The other is the Mauler weapon system, a highly mobile air defense missile system that is a keystone of the Army modernization program.

Pomona division personnel began initial Redeye studies in 1956, financed by company funds. Plans had been under development for three years when the first Redeye engineering contract was awarded to the division by the Army.



GD/POMONA TODAY — Aerial view shows tactical guided missile facility's 1,300,000 square feet of buildings located in southwest corner of Pomona, Calif.

Designed to give combat troops the capability of destroying low-strafing or bombing aircraft, Redeye is easily man-transportable and is intended to be shoulder-fired against low-flying jets or conventional warplanes.

The missile launcher outwardly resembles the bazooka of World War II fame and is about four feet long, three inches in diameter and the entire weapons system weighs about 28 pounds. A composite structure, Redeye contains a propellant, an infrared guidance system and a high-explosive warhead.

First contract for Mauler development was awarded to GD/Pomona in 1960. Earlier, 97 firms had been asked to consider the Mauler concept — 31 submitted proposals with competition later narrowed to 12 and then to four before Pomona was selected.

Mauler, a compact, mobile weapon system, will use solid-fuel, radar-guided missiles to destroy short-range tactical missiles and rockets and high-performance tactical aircraft near forward battle area positions.

Each Mauler unit will be contained entirely on a self-propelled chassis and will be capable of delivering accurate fire while moving. In addition, each Mauler unit will contain its own power supply, target detection and electronic fire control equipment, as well as its own battery of missiles.

Development and production of guided missiles has been the chief concern of Pomona division but it is by no means the only activity engaging the diversified capabilities of the division.

POMONA ACTIVE IN ASSIST WORK

The division has done assist work for Astronautics, Convair and Fort Worth divisions. One of the most important contributions in this respect was made to the Atlas program by work on hardware and automatic test equipment.

Customer training courses for armed forces personnel have been conducted through the years. Classes to familiarize Navy officers and men with Terrier, Advanced Terrier and Tartar missiles have been given in the past and key Army personnel are now being briefed on Mauler operations.

Corporal missile handling trainers were built at Pomona from 1954 to '56. The Corporal is an Army surface-to-surface missile with a supersonic speed and a range of 75 miles.

Independent research and study programs have included such diverse products as a manned anti-satellite system to inspect and, if necessary, destroy hostile craft in orbit and a "solid state image converter" used to photograph recent eclipse of the sun.

The principal manufacturing facility at Pomona is capable of large volume production of guided missiles and complex electronic systems. Fabrication, assembly and checkout are accomplished within the 750,000 sq. ft. of this area.

The engineering department at Pomona houses a complete weapon system development and product engineering facility, staffed by experienced and highly competent engineers, scientists and technicians.

Analog and digital computer laboratories, antenna test ranges, fully equipped metallurgical and chemical laboratories and environmental test chambers help effect a complete engineering facility.

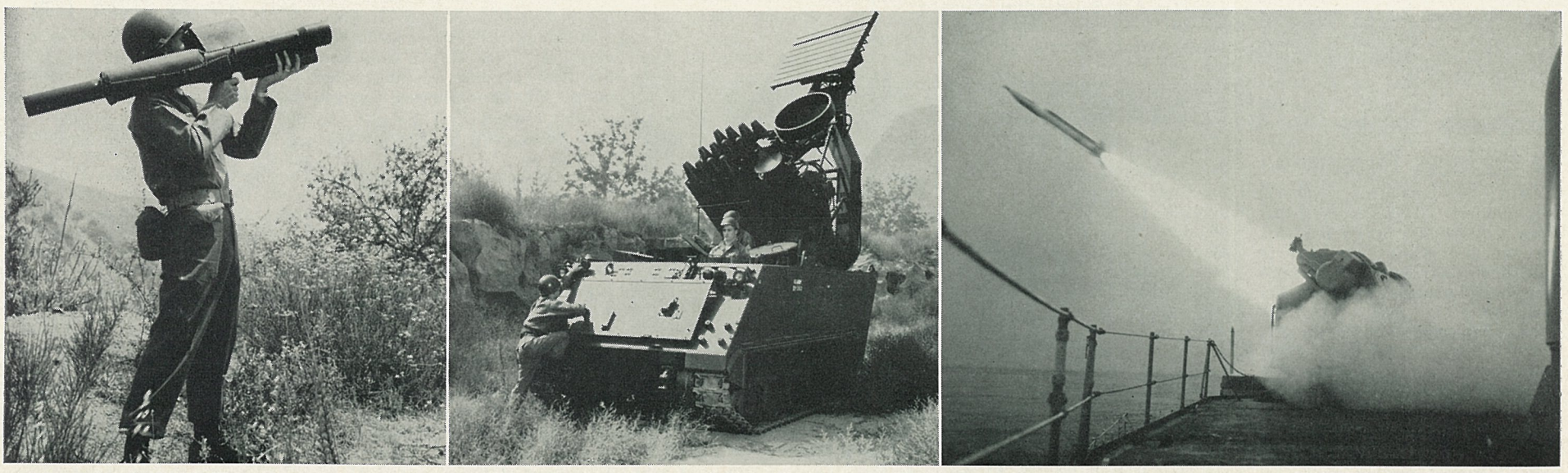
PRESENT POPULATION IS ABOVE 6,500

Present facilities at Pomona cover 1,300,000 sq. ft., housing in excess of 6,500 employees. C. F. Horne, former Civil Aeronautics Administrator, is president of the division and a vice president of General Dynamics Corporation.

Horne, a retired Navy rear admiral, was graduated from the United States Naval Academy at Annapolis in 1926. He has a master of science degree in communications and electronics from Harvard University. Active in many professional and civic organizations, he is currently president of Electronic Industries Association. He was named manager of the Pomona Division in 1953.

In 1961 the Ordnance Aerophysics Laboratory located in Daingerfield, Texas, was placed under the supervision of Pomona Division. The Daingerfield facility has two modern high altitude test cells, two sea level test cells and one small scale cell. The high altitude chambers are designed for blowdown operations and are capable of free-jet and connected inlet testing of full scale ramjet engines.

Operated by General Dynamics for the Bureau of Naval Weapons, the laboratory employs approximately 260 engineers and technicians.



POMONA PRODUCTS — At far right, supersonic Tartar guided missile which now arms more than score of warships, leaves launcher. In center is engineering model of Mauler, air defense guided missile system with capability against short range rockets. At left is shoulder-fired Redeye guided missile.

GD

SAN DIEGO EDITION
(Serving GD/CONVAIR
and GD/ELECTRONICS)

GENERAL DYNAMICS NEWS

Vol. 17, No. 3 | PUBLISHED BY GENERAL DYNAMICS CORPORATION | Wednesday, January 29, 1964

Dynamics Is Pledged To 'Thrift, Frugality'

Full cooperation with President Johnson's program of "thrift and frugality . . . to get a dollar's value for every dollar spent" has been pledged by General Dynamics Corporation's president, Roger Lewis. All divisions have been instructed to re-examine existing Cost Reduction Programs to assure maximum effort.

Lewis' action was in response to a personal letter from the White House in which General Dynamics was asked to assist in achieving "significant reductions in defense expenditures." Similar letters went to all major defense contractors. Also received by President Lewis were personal letters from Defense Secretary McNamara and NASA Administrator Webb elaborating on steps recommended for greater economy in defense operations.

(For texts of key letters, see columns 1 and 2 on this page and columns 1 and 2 on page 3.)

Coincident with acknowledgement of the Washington requests, Lewis sent copies of the correspondence to all division managers and instructed them to establish goals for reducing costs and improving efficiency, using 1963 performance as a base to measure progress. (For text see columns 4 and 5.)

He reminded division heads that "It is General Dynamics policy to deliver the best possible product in the shortest possible time at the lowest possible cost" and pointed out that personal leadership is essential.

President Lewis' reply to Secretary McNamara reported his instructions to all Dynamics divisions and added: "I can assure you that cost efficiency, along with product integrity, are paramount in each of our undertakings."

His reply to NASA Administrator Webb repeated Dynamics' emphasis upon product integrity, cost efficiency and schedule integrity and included a report on significant steps that General Dynamics divisions have taken in this direction.

"We propose to further improve and intensify our effort in this area during the coming months . . . to assure both ourselves and NASA that the country's space program is truly receiving full value for every dollar," he added.

THE WHITE HOUSE
WASHINGTON

December 2, 1963

Dear Mr. Lewis:

In addressing the Congress last week, I pledged my Administration to the utmost of thrift and frugality, and to get a dollar's value for every dollar spent.

I have directed the heads of all government agencies to accelerate immediately their efforts to operate their programs at the lowest possible cost. The Secretary of Defense has already established a cost reduction program aimed at achieving annual savings of $4 billion, through efforts now in process or planned by Fiscal Year 1967, and he has further committed his Department to realizing $1.5 billion of these savings in the current fiscal year. More than 55¢ out of each Defense dollar is spent by its contractors. It is for this reason that I am calling on you personally to assist me and the Secretary in achieving further significant reductions in Defense expenditures.

It is my desire that you establish an affirmative program of cost reduction in the performance of Defense contracts, both those which you now hold and those which you may subsequently receive. If you already have such a program in being, then I call on you to accelerate, expand, and intensify this effort.

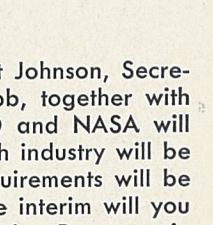
I have asked the Secretary of Defense to take into account the accomplishments of contractors who successfully reduce the cost of Defense procurement, when making future source selections, and in determining profit and fee rates on non-competitive negotiated contracts.

I have also discussed this program with the Director of the Budget and the Comptroller General.

The Secretary of Defense's letter, elaborating this program is enclosed. It has my fullest endorsement.

Sincerely,

Lyndon B. Johnson



GENERAL DYNAMICS CORPORATION
ONE ROCKEFELLER PLAZA
NEW YORK 20, NEW YORK

January 6, 1964

The President of the United States
The White House
Washington 25, D. C.

My dear Mr. President:

Your letters of December 2, 1963 and December 11, 1963 in which you strongly urge renewed effort in reducing costs in the performance of defense contracts were most gratifying to receive and are consistent with similar programs being carried out in each of the Divisions of General Dynamics.

As a positive endorsement to your request, each of our operations will thoroughly re-examine its Cost Reduction Programs. I can assure you that cost efficiency, along with product reliability and schedule integrity, are paramount in each of our undertakings.

Sincerely yours,

Roger Lewis

Roger Lewis
President

To: All Division Managers
From: Roger Lewis

Enclosed are copies of letters from President Johnson, Secretary McNamara and NASA Administrator Webb, together with my replies. We have been advised that DOD and NASA will issue procedures governing the manner in which industry will be requested to respond to this effort. Formal requirements will be forthcoming from this office at that time. In the interim will you thoroughly re-examine your existing Cost Reduction Programs in order to assure yourselves that maximum effort is being expended to accomplish the objectives outlined. . . . You should establish goals for reducing costs and improving efficiency using 1963 actual experience as the base from which to measure your progress.

It is General Dynamics policy to deliver the best possible product in the shortest possible time at the lowest possible cost. Getting the job right the first time and doing it quickly are the biggest challenges and offer big cost reduction potentials.

While a great deal has been done in the past two years, cost reduction is a continuous objective in every segment of our business. All aspects of your operations are therefore involved and your personal leadership essential.

THE SECRETARY OF DEFENSE
WASHINGTON

December 2, 1963

Dear Mr. Lewis:

I suggest that you give particular attention to reducing Defense procurement costs by assisting the Defense Department in achieving its three primary cost reduction objectives, which are:

- Buying only what is needed.
- Buying at the lowest sound price.
- Reducing operating costs.

You can assist us in buying only what is needed by critically appraising procurement specifications to identify both qualitative and quantitative requirements in excess of those needed to assure safe and reliable operation of military equipment. Some Defense contractors now have formal value engineering programs, and such contractors have been able to recommend hundreds of ideas to reduce costs of parts, components and end items by as much as 50%. I urge all contractors to stress such critical examinations, and to propose cost savings ideas promptly to Defense officials.

The second major way in which contractors can reduce Defense costs is by taking steps to

(Continued on Page 3)

GD/E Radars Displayed During Defense Week

General Dynamics products exhibited during San Diego's Aerospace Defense Week Jan. 12-19 included two developed by GD/Electronics-San Diego.

REINS radar assembly and Terrain Following Radar displays were sent to the San Diego Aerospace Museum for public viewing during the week-long observance.

Other GD-built defense systems included the Convair-built F-102, Pomona guided missiles, Astronautics aerospace products.

GD Value Engineering Saves $7 Million in '63

In the field of cost reduction, Value Engineering/Value Control efforts alone within General Dynamics divisions resulted in savings of more than $7 million during 1963, a survey revealed this week, and higher goals have been set for 1964.

(The total does not include savings accomplished by other cost reduction systems in the divisions, such as Employee Suggestions and Cost Improvement Proposals, etc., but applies to Value Engineering/Value Control alone.)

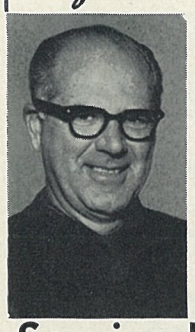
Dynamics divisions completed 648 value study projects during the year which resulted in cost reductions of a total of $7,057,000, most of which represented direct savings and lower costs to the customer.

Approximately 750 individuals took part in intensive workshop seminars usually lasting a week or more and an additional 1,500 participated in orientation sessions.

"Return on investment" showed Value Engineering efforts were profitable in all cases. At GD/Astronautics savings of $9.60 were recorded for every dollar expended in the program during

(Continued on Page 3)

Log Book Entries



Ralph A. Way, Dept. 400-1, is first Convair man to receive 25-year service emblem in 1964.

Service Emblems

CONVAIR

Service emblems due during the period Jan. 16 through Jan. 31.

Twenty-five-year: Dept. 6-2, J. A. Smole.

Twenty-year: Dept. 42-5, Mamie M. Gideon.

Fifteen-year: Dept. 3-5, Guadalupe Ashook; Dept. 6, Doris H. Bennett, R. E. Sommers; Dept. 171, Doris T. Flack.

Ten-year: Dept. 6, A. D. Mattia, G. V. Smith, Joyce G. Stulce; Dept. 14-4, Mayme M. Liminga; Dept. 48-70, A. S. Spitzer; Dept. 97-3, G. A. Papa.

ELECTRONICS

Twenty-year: Dept. 54-00, S. G. Roux.

Ten-year: Dept. 82-00, Mary Jo Longbottom.

Papers Presented

ELECTRONICS - SAN DIEGO

BRENDING—D. O. "Computers and Their Impact on Technical Documentation," Seminar on Engineering Graphics, sponsored by University of Southern California, Jan. 30.

HORNBACK—Alton B. "The Doppler Principle and the Velocity of Light," 1964 Winter Convention on Military Electronics, IEEE, Los Angeles, Feb. 5-7.

Awards

CONVAIR

Employee Suggestion awards approved for periods ending Jan. 10 and Jan. 17.

Dept. 6, E. H. Gilger, $100, partial payment.

Dept. 14-4, J. M. McCawley, $20.

Dept. 25, P. O. Jones, $11.50.

Dept. 115, F. S. Hall, $100, partial payment; F. Pagliuso, $10.

Dept. 128, E. Carpenter, $66.80, final payment.

Cost Improvement Proposals approved for same periods.

Dept. 16, D. Q. Henry.
Dept. 93-2, R. G. Macomber.
Dept. 401, V. P. Mavrinac.

Retirements

CONVAIR

DAWSON — Rosalie L., Dept. 171. Seniority date Oct. 17, 1950, retirement effective Dec. 20, 1963.

GRENIER—Frank R., Dept. 48-36. Seniority date Oct. 7, 1948, retirement effective Dec. 27, 1963.

HEFFLER — George R., Dept. 215. Seniority date Sept. 18, 1953, retirement effective Jan. 6, 1964.

KEESHAN—William P., Dept. 3-1. Seniority date March 7, 1952, retirement effective Dec. 20, 1963.

KLOMPARENS—John H., Dept. 14-6. Seniority date Feb. 2, 1953, retirement effective Nov. 25, 1963.

LA FLEUR—Ethyl R., Dept. 44-3. Seniority date March 22, 1951, retirement effective Dec. 22, 1963.

LASKI—Ernest W., Dept. 62-1. Seniority date Oct. 16, 1950, retirement effective Dec. 31, 1963.

MC CARTY—John G. Jr., Dept. 115. Seniority date Oct. 23, 1953, retirement effective Nov. 21, 1963.

MC KINNEY—Samuel D., Dept. 48-62. Seniority date Jan. 26, 1951, retirement effective Nov. 25, 1963.

MILLER — Comfort T., Dept. 16-7. Seniority date May 12, 1952, retirement effective Oct. 30, 1963.

OFFICER — Howard L., Dept. 218. Seniority date Sept. 1, 1950, retirement effective Nov. 2, 1963.

OGNIBENE—Charles, Dept. 216. Seniority date Nov. 14, 1955, retirement effective Nov. 9, 1963.

OTT—Raymond M. Sr., Dept. 401-2. Seniority date Aug. 14, 1950, retirement effective Dec. 29, 1963.

SCHRECK—Mary C., Dept. 44-5. Seniority date March 14, 1951, retirement effective Nov. 11, 1963.

SHELDON—Nellie, Dept. 102. Seniority date Jan. 30, 1951, retirement effective Dec. 20, 1963.

SMITH—Robert M., Dept. 21-1. Seniority date Jan. 17, 1951, retirement effective Dec. 23, 1963.

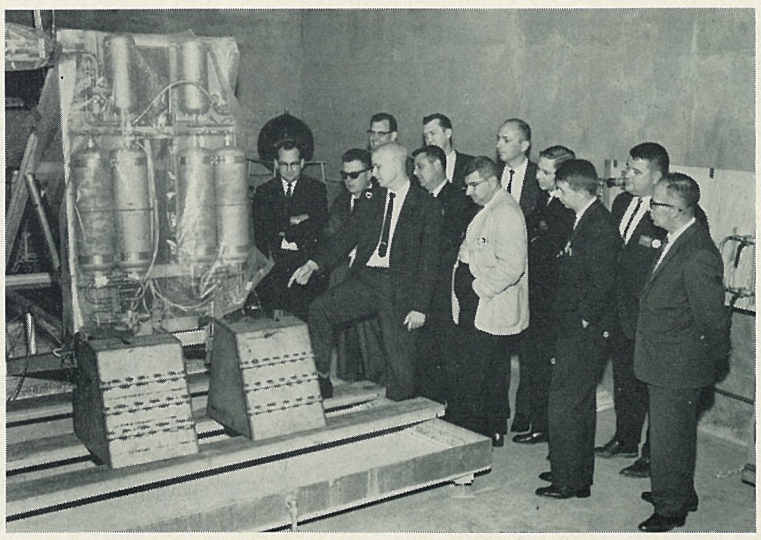
ELECTRONICS

SEWARD — George H., Dept. 71-00. Seniority date Oct. 9, 1946, retirement effective Jan. 13, 1964.

Rider-Driver

ELECTRONICS

RIDE WANTED from 1102 C Avenue, National City, to Plant 1, 7:30 to 4:30 shift. Leota Pock, home phone 477-2940 or Plant 1 ext. 2260.



TEST REVIEW—B. J. Kuchta, Convair Little Joe II attitude control system test engineer (center), explains test setup to group of North American engineers at San Diego plant for Jan. 8 meeting. In light jacket at right of Kuchta is L. M. Wolff, North American boiler plate 22 project engineer.

North American and GD/Convair Engineers Review Little Joe

A review of the Little Joe II attitude control system which will be incorporated in the fifth and sixth launch vehicles was held at GD/Convair early this month for the benefit of a group of North American Aviation engineers.

Heading the North American group at the Jan. 8 session was Leo M. Wolff, North American project engineer. Others were W. D. Burke, R. S. Crowder, A. Gillies, C. W. LaMont, E. J. Martin, J. F. Proctor, N. W. Pion.

Pion, North American systems integration, joined D. G. Moody, GD/Convair Little Joe II deputy program manager-engineering, in coordinating the meeting.

The day was spent in inspection of Little Joe II vehicles, including the second vehicle which is being prepared for move-out to White Sands Missile Range the first week of next month, and the attitude control system test setup which is simulating an actual Little Joe II flight during checkouts of the control system (**GD NEWS**, Dec. 11, 1963).

N. L. Wener, Convair technical support group engineer for Little Joe II, led a discussion on general problems associated with trajectory and ballasting.

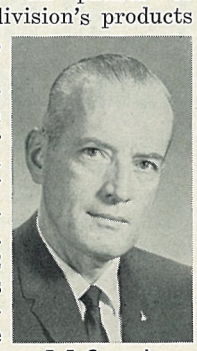
Besides Moody and Wener, other Convair men taking leading roles during the meet included B. J. Kuchta, Convair attitude control system test engineer.

Present for all or part of the discussions were H. R. Horne, M. A. Crosley, R. K. Jepperson, A. W. Kellogg, J. E. Lampman, J. K. Lessig, R. G. McGeary.

Carey Named To GD/E Post

Edwin F. Carey Jr., has been appointed manager of international requirements for GD/Electronics-San Diego, according to an announcement by J. W. Colvin, GD/E manager of plans and programs.

Carey's duties will include responsibility for all phases of marketing the division's products internationally, Colvin said.



E. F. Carey Jr.

Carey recently retired from the U. S. Air Force as a colonel after 27 years of military service. From late 1962 until early this year he was director of the Aerospace Defense Command, Los Angeles, Calif.

Before that he served as Deputy Chief of Staff Operations for the Alaskan Air Command and was Commander, 414th Fighter Group, Oxnard AFB, Calif.

Carey also served as a representative of the Air Defense Command at the Massachusetts Institute of Technology's Lincoln Laboratory during the development of SAGE (Semi-Automatic Ground Environment), one of the nation's primary air defense warning control systems.

Dial Service Load Gaining

More and more people based at GD/Convair Plant 1 are becoming acquainted with the convenience of the Dial Wire Service, recently installed in Bldg. 19's switching center, reported R. H. Williams, Convair communications coordinator.

In fact, said Williams, in the six weeks the phone dictation equipment has been in use, the load has increased steadily and anticipated problems associated with the installation of any new equipment have been ironed out much faster than expected.

"Fine cooperation from both users and the switching center operators is responsible for the smooth transition," he said.

Tips which can eliminate most chance of errors are: speak directly into the telephone mouthpiece when dictating a message; speak distinctly and not too fast; spell out unusual, technical, foreign words, and proper names. The standard phonetic alphabet used by Western Union will be furnished all departments for letter identification.

GD/E W-2 Forms Out; Missed? Call 1927

GD/Electronics people at San Diego who have not yet received their W-2 forms are asked to contact the GD/E payroll department, ext. 1927, Plant 1.

The statement of earnings and income tax withheld must be attached to all income tax reports. Forms were mailed out to GD/E people in mid-January.

Apprentice Council Session Convenes

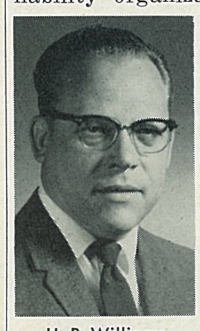
H. W. Rubottom, in charge of GD/Convair educational services, took part in the quarterly session of the California Apprenticeship Council, held Jan. 22-23 in San Diego.

Rubottom serves on the planning committee of the 18-member council appointed by Governor Brown.

H. P. Williams Coordinating Cost Reports

In line with GD/Convair's continuing emphasis on lowering costs, value control and cost reduction activities now are under direct supervision of Division President J. H. Famme.

H. P. Williams, manager of value control at Convair since 1961, now reports directly to Famme. The value control function formerly reported to the reliability organization within the division.



H. P. Williams

According to Famme, in making the announcement, "With the increasing emphasis on cost reduction, both within our company and the Department of Defense, we intend to devote every effort to stress realistic evaluation of all product costs.

"Williams will coordinate all cost savings and value control activities in the division, making certain that strong emphasis on cost reduction is given to current work and future proposals.

"He will be contacting many of you for your suggestions and plans, and offering his assistance and advice in the area of cost reduction. I urge every person at Convair to join us in this effort."

Since Convair stepped up its value control program over two years ago, under Williams' direction, hundreds of Convair people from every function within the division have been introduced to value control in 19 full workshop seminars. Potential savings have spiraled into millions of dollars.

All division administrators have learned value analysis principles in capsule indoctrinations. Special seminars have been conducted for customers, suppliers, military agencies, San Diego industries and colleges.

In addition, Convair's value control programmed instruction textbooks, which cut training time by at least 25 per cent, have aroused increasing interest in industry and governmental agencies, with many of the country's military branches and industrial companies now setting up their own programs along the lines of Convair's concept.

GD/E Wives to Meet At Luncheon Feb. 13

Reservations for the next monthly luncheon for GD/Electronics Wives' Club may be made until Monday (Feb. 10).

All GD/E wives are urged to contact the hostesses, Mrs. S. M. Chesler and Mrs. Hugh Gurley, by that date. Mrs. Chesler may be reached on home phone, 453-3119; Mrs. Gurley, 274-2426.

Islandia Hotel on Mission Bay has been chosen as location for the Feb. 13 gathering with social hour from noon until 1 p.m. when luncheon will be served. Cards will be played later in the afternoon.

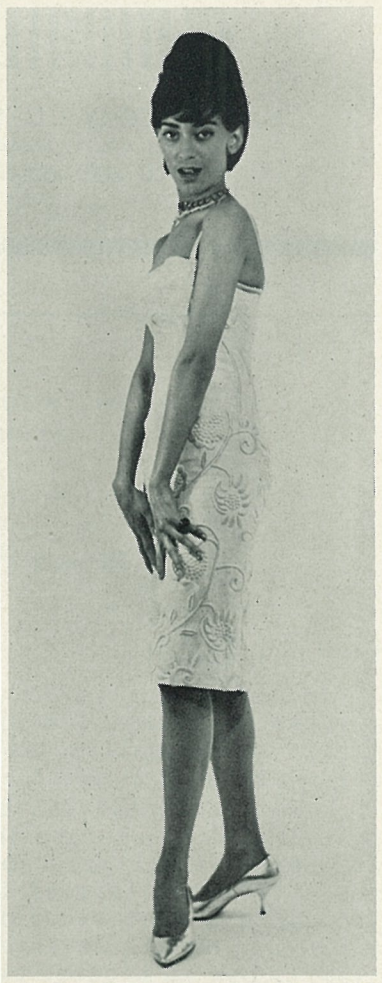
Price, including tax and tip, is $2.40 each.

McMurry Appointed As Club Treasurer

R. T. McMurry (Dept. 25-0) has been appointed treasurer of the GD/Convair Management Club to finish out the term of Carl Uhl, who has transferred to engineering department.

Other changes on the club's board of control is appointment of G. O. Withem (Dept. 20-0) to replace Ray Niski, one-year board member. Niski has transferred to Astronautics.

Ralph M. Montgomery, Management Club president, said that L. G. Lawson heads the nominating committee who will present a new slate of officers at the March meeting. Installation will be in April.



TALENTED — Lovely Lois Rollins, 21-yr.-old daughter of Isaac Rollins of GD/Convair Dept. 26-2, is now appearing with Katherine Dunham dance troupe in New York and instructing in newly-opened School of Dance there after more than two years on tour with troupe in Haiti and throughout U.S.

Talks Explain Retirement

Salaried employees at GD/Convair and GD/Electronics, included in General Dynamics retirement program, were briefed during the last two weeks on benefit changes.

E. C. McManus, Corporate director of personnel administration, and James Arenholz, personnel services coordinator, explained the improved program to staffs of GD/Convair and GD/E division heads, J. H. Famme and J. L. Lombardo. They also held three meetings on Jan. 16 for 360 GD/E salaried people and Convair non-represented, flat-salaried engineers.

Fifteen meetings last week (Jan. 21, 22, 23) informed around 750 Convair salaried employees. These were conducted by J. K. Field, manager of personnel services, and K. W. Wulfemeyer, personnel services coordinator.

Convair people who were unable to attend the sessions may contact Wulfemeyer at ext. 1705, Plant 1.

GD/E employees may receive information on the new retirement program from George Oatman, GD/E employee services, ext. 2583, Plant 1.

GD/E and GD/Pomona To Sponsor Exhibit

GD/Electronics-San Diego will join with GD/Pomona Division in an exhibit of products at next week's National Winter Convention on Military Electronics in Los Angeles Feb. 5-7.

The three-day convention is sponsored by the National Professional and Technical Group on Military Electronics and the Los Angeles district of the Institute of Electrical and Electronics Engineers.

Tentative plans call for GD/Electronics to introduce its newly-developed hand-held radar. It will display its S-C 3070, high-speed electronic printer.

Pomona's displays will emphasize its new guided-missile products, specifically the Tartar missile produced for the Navy and the Redeye weapon system developed for the Army.

General Dynamics NEWS

Published by General Dynamics Corporation, One Rockefeller Plaza, New York 20, N. Y.; with editorial headquarters at 3302 Pacific Highway, San Diego 12, Calif., P.O. Box 1950, telephone 296-6611, ext. 1071. Logan Jenkins, editor-in-chief.

Astronautics Editorial Offices, Bldg. 8, GD/Astronautics, Mail Zone 130-01, P.O. Box 1128, San Diego 12, Calif. Telephone 277-8900, ext. 3322. Staff: Bryan Weickersheimmer, editor; Willard Harwood.

Convair Editorial Offices, Bldg. 32, Plant 1, GD/Convair, Mail Zone 1-320. P.O. Box 1950, San Diego 12, Calif. Telephone 296-6611, ext. 1071. Staff: Grayce Fath, Helen Pemberton.

GD/Electronics (San Diego) news contact: Helen Wood, 298-4641, ext. 1377, Plant 1, Bldg. 51.

Fort Worth Editorial Offices, between Cols. 71-C and 71-D, Assbly. Bldg., GD/Fort Worth, Mail Zone T-63, P.O. Box 748, Fort Worth 1, Texas. Telephone PErshing 2-4811, ext. 2961. Staff: Dave Lewis, editor; Mary Beck.

Pomona Editorial Offices, Room 106-D, Bldg. 1, GD/Pomona, Mail Zone 3-3, P.O. Box 1011, Pomona, Calif. Telephone, NAtional 9-5111, ext. 6226-5279. Staff: Glenn Kehr, editor; Carol Sowers. Daingerfield news office, P.O. Box 947, Daingerfield, Texas. Telephone Lone Star, Texas, 2211, ext. 424.

* * *

Affiliated editions of General Dynamics NEWS are published in Rochester, N. Y., covering GD/Electronics and Stromberg-Carlson, editorial offices, 100 Carlson Road, HUbbard 2-2200, ext. 2555. Fred E. Voss, editor; and at Groton, Conn., covering GD/Electric Boat, editorial offices at Groton, HIlltop 5-4321, ext. 300 and 513, Joseph Tracey, editor.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
WASHINGTON, D. C. 20546

OFFICE OF THE ADMINISTRATOR

December 11, 1963

Dear Mr. Lewis:

As one of our important contractors, you know that we have instituted an extensive reorganization effective November 1. This realignment of the basic organizational structure and managerial processes of this Agency was part of a continuing program of study and analysis aimed at obtaining the most efficient operation of our program.

While we were preparing these organizational improvements, and recognizing that over 90 percent of our annual appropriations are spent in contracts with industry, we made a concurrent analysis of what steps could be taken with our contractors to obtain cost savings without sacrificing the performance or reliability of flight hardware. This included, among other important actions, a review of the results of the Department of Defense cost reduction program and the careful consideration of its applicability to NASA's research and development programs.

The areas which we feel offer the greatest opportunity for significant savings are as follows:

1. Buying at the lowest sound price compatible with NASA's reliability requirements. NASA has undertaken a major effort to maximize the use of competition on our procurements. Greater attention will be given to this in the future. Inasmuch as you and other NASA prime contractors spend on an average of 42 cents of each contract dollar with subcontractors, we expect your subcontracts to be placed competitively to the fullest possible extent.

2. Placing increased emphasis on incentives. Within the last year, NASA has made extensive and increasing use of incentives in the negotiation of new contracts. Furthermore, we are working with a number of NASA prime contractors to convert existing CPFF contracts to an incentive form. We would suggest that, as a part of your cost reduction program, you explore the possibility of the use of some type of incentive contract on any sizable CPFF subcontracts that you have with your suppliers.

3. Reducing operating costs. Careful analysis should be made of the organizational structure and manpower utilization on each of your major contracts with NASA. In addition, if strong controls are not already in effect, these should be implemented in order to reduce both direct and overhead costs. In the latter area, particular attention should be given to the size and location of burden centers and to the proper distribution of general and administrative expenses. Appropriate parallel action should be taken to streamline procedures and dispense with any unnecessary or marginal activities.

Consistent with the President's recent directive with respect to efficiency and economy within the departments and agencies of the Government, I hereby request that you advise me within the next 30 days as to:

1. The specific steps which you and your principal subcontractors have taken within the past year to achieve full value for every dollar expended on our space program.

2. Proposed steps which you intend taking and the specific targets you intend to set for yourself within the coming calendar year in furtherance of the President's request for thrift and frugality.

3. Any specific steps which you feel that NASA might take which would permit us to achieve the NASA program objectives at a lower overall cost.

In conclusion, I urge that you give this your personal attention. Our studies of past cost reduction efforts, within both industry and Government, clearly show that to be successful such a program must have the complete and emphatic support of top management. Further, we believe accurate and valid documentation of proven savings resulting from the program is necessary to maintain the momentum of the effort and gauge its success. This emphasis on auditable cost reduction must be viewed as an addition to my heavy reliance upon the direct and continuing personal involvement of yourself and your executives in our common goals of effective program and project management. May I count on your wholehearted assistance in this important aspect of our space program?

Sincerely yours,
James E. Webb
Administrator

Value Engineering Effort Saves $7 Million in 1963

(Continued from Page 1)

the year. Canadair estimated that since the inception of the program at Montreal in January, 1962 the rate of return has been five to one.

Stromberg-Carlson also showed a good return, with estimated savings of $163,203 resulting from a $29,660 cost of implementation.

GD/Convair led the divisions in total dollar savings with $2,945,000 and GD/Fort Worth was next with a $1,746,000 figure. GD/Astronautics in the last half of 1963 chalked up $900,000 in savings as a result of the program. GD/Electronics-Rochester reported a saving of $520,000 and GD/Pomona a figure of $375,000, Electric Boat $269,000, Stromberg-Carlson $133,500 and Canadair $94,000 with Electro Dynamic at $75,000.

In number of individuals involved in workshop seminars during the year GD/Fort Worth led the parade with 347, while 670 attended orientation sessions. GD/Pomona ranked next with 169 attending workshops. GD/Convair reported 160 at workshops, 39 customers attending and 45 indoctrinated. At Astronautics 69 attended workshops and 769, orientation sessions.

GD/Electronics-San Diego currently has 100 individuals who have been trained in full-length seminars.

Fort Worth completed the most projects—325—of all divisions, followed by Convair with 200 and Pomona with 58.

Despite a difficult year during which its plant was destroyed by fire, Electro Dynamic continued its value control program, completing four projects for a $75,000 savings.

McNamara (Continued)

(Continued from Page 1)

assure that their own purchases are made at the lowest sound price. Defense prime contractors spend, on an average, 50¢ of each contract dollar with subcontractors. To the fullest possible extent, such subcontracts should be placed competitively in order to stimulate the full play of the free enterprise system. It is the experience of the Defense Department that for every dollar shifted from non-competitive to competitive procurement, 25¢ or more can be saved from the price. In placing subcontracts, fixed price and incentive contracts should be employed wherever possible, in order to provide the maximum incentive to subcontractors.

Thirdly, Defense contractors can reduce the over-all cost of government by assuring that their own internal operations are conducted in the most economical manner. Effective manpower utilization programs to increase productivity; strong budgetary controls to reduce both direct and overhead costs; simplification of procedures; and elimination of unnecessary activities—are all matters with which I know you are constantly concerned. Wherever unreasonable government requirements are contributing to excess costs, I invite you to call these matters promptly to the attention of the proper government offices.

In conclusion, I urge that you give to these and other cost reduction ideas which I know will occur to you your immediate personal attention and that you join with me in achieving full value for every dollar spent in support of our national defense.

Sincerely,
Robert S. McNamara

SEMINAR GRADS—With Atlas missile looming behind, first 1964 graduates in value engineering seminar at GD/Astronautics pose for class picture. They are typical of over 750 who took part in cost-reducing workshops throughout General Dynamics divisions in 1963.

Suggestions, CIPs For Convair Alone Bring Savings of $650,000 in '63

Employee Suggestions and Cost Improvement Proposals saved GD/Convair over $650,000 during the last year, with nearly an equal amount set as the target for 1964.

All division departments have been assigned individual amounts to aim at throughout the current year to make a grand total of $641,500 savings.

Department heads have been notified of the established savings expected through ESs and CIPs and will be informed each quarter of the departments' progress, said Vic Janusz, supervisor of facilities control and cost reduction.

The $653,171 savings credited to approved ESs and CIPs during 1963 was within 89 per cent of the $733,000 goal.

Several departments went over their targets by several times. Dept. 91 (accounting) parlayed its savings to 1,357 per cent of its assigned goal! Its target was $15,000. Savings achieved through CIPs was $203,506.

Dept. 101 (sheet metal) stole the show in the production departments' race. Ingenious ideas submitted through ESs and CIPs shot total savings to $154,858 — more than four times the $35,000 target figure.

Totals on savings in 1963 by Employee Suggestion and Cost Improvement Proposal systems from all divisions were not available at presstime. However, the totals at Pomona Division (GD NEWS, Jan. 15, 1964) was $168,190 derived from nearly 2,000 CIPs and ESs submitted (531 approved) while at Astronautics the sum saved was $378,851, derived from 2,120 (343 approved).

Janusz said that quality of suggestions was better than ever before. A larger percentage of the division's employees are turning in more ESs and CIPs and having more accepted, showing that they are ferreting out more practical means of doing their jobs better at less cost.

During the year 512 ESs were turned in with 223 accepted, raising the percentage approved from 25 to 43. (National average is between 20 and 25 per cent.) Total savings through ESs was $77,111 with $8,753 paid out in awards. Average payment was $36.93.

Out of 161 CIPs received, 75 were accepted, saving the division $576,060.

High School Seniors Hear Frank Davis

GD/FW President F. W. Davis was a panelist on a career-discussion meeting as part of the 11th annual Citizenship and Career Conference Jan. 24 on the TCU campus.

More than 1,000 seniors from 30 high schools of the area participated.

Entire Wawona Lodge Reserved For Bargain Weekend in Snow

As a result of tremendous response to the General Dynamics Ice Skating Club-sponsored Winter Weekend at Big Bear Lake, Feb. 7-9, a second trip has now been scheduled for Feb. 21, 22 and 23.

The original outing was completely "sold out" within a week of its initial announcement.

The second trip is identical in all respects to the first. The group has reserved all Wawona Lodge facilities at Big Bear, including rooms with bath for 2, 3, 4 and 5 persons, and 18 cabins for groups of 3 to 12.

Total cost of $12 per person will include lodging, two ranch-style breakfasts and one dinner, plus a pizza snack at the traditional Saturday night dance. Catering will be handled by Gil Hutter, Prophet Co. manager at GD/Astro.

The second event, like the first, is open to all GD/Convair, GD/E, and GD/Astro employees and their families. Participants must make their own transportation arrangements.

Reservations will be accepted at employee services outlets through Feb. 17. Information is available from ARA Commissioner Bud Davies, or Barbara Gilliland, both at GD/Astro main plant ext. 4041.

Garden Clubs To Meet Feb. 5

Next meeting of ARA-CRA Garden Clubs will be held at 7:30 p.m., Feb. 5, in Balboa Park's Floral Association Bldg., and will feature demonstrations of both Japanese and modern flower arranging.

Both ARA and CRA organizations elected new officers at their January meeting.

Charles Splinter, Dept. 759, heads the Astro club as president, with Paul Leach, Dept. 364, vice president; Helen Spann, Dept. 953, secretary; Bill Spann, Dept. 953, librarian. Carolyn Buman, Dept. 512, is hostess in charge of new members and visitors, and Mr. and Mrs. Albert Hornby, Dept. 972, will arrange refreshments.

The CRA unit is headed by President Danny Blum, Dept. 3, (ret.), with Lyle Humphrey, Dept. 131, vice president, and LeVonne Splinter, Dept. 11, secretary.

January club meeting featured a demonstration of rose culture and pruning by Jim Kirk, past president, San Diego County Rose Society.

ARA Commissioner Everett Henderson announced that the groups' Spring Rose Show has been scheduled for April 5 in Balboa Park. He reminded all GD/Astro, GD/Convair and GD/E employees that the clubs have arranged for them to purchase bare root roses at 25 per cent discount.

Special order blanks are available at all employee services outlets, and Henderson may be contacted at GD/Astro ext. 2236 for further information on this program.

WATCH IT! KEEP SPEED TO 15 MPH

Convair, Astro, and Electronics drivers who ignore the in-plant speed limit of 15 miles an hour are in danger of losing the privilege of bringing their cars within Plant 1, warns J. K. Field, Convair manager of personnel services.

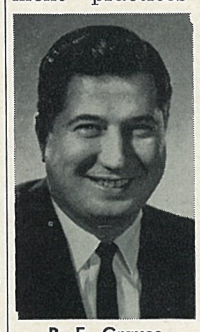
"We intend to clamp down on all drivers who do not observe this rule," said Field. "Even 15 miles an hour is, in many instances, too fast to drive within the plant without endangering lives of workers or pedestrians."

Safety engineers have authority to report all violators. In-plant parking privileges will be withdrawn whenever drivers are found exceeding the speed limit.

Only exceptions to the 15 mph speed limit are ambulances and fire trucks on emergency runs.

Graves Named To NMA Post

Reese E. Graves, who heads GD/Astro's engineering management practices section (Dept. 529-0) has been elected a director of the National Management Association (NMA).



R. E. Graves

As such he will represent the nine San Diego-area clubs, including Management Clubs at GD/Astro, GD/Convair, and GD/E-SD, on the national organization's highest policy-making body.

Graves has been a member of the GD/Astro club for more than four years, and has served on committees concerned with management development, education, and understanding of the American free-enterprise system.

During his term as national director, he will perform the dual function of representing San Diego groups in the formulation of NMA policy, and conversely aid in promulgation of NMA information among member clubs.

Graves is a Navy veteran, and holds a BA degree from San Diego State College, where he has also engaged in advanced study in industrial psychology.

He holds licenses or credentials for teaching, as a management consultant, vocational counselor, industrial psychologist, psychometrist, and certified employment consultant. He joined GD/Astro in 1959.

DYESS PERSONNEL DONATE $2,000

DYESS AFB — GD/Astronautics employees here recently presented $2,000 to the United Fund of Abilene (Texas) to bring that organization's current drive to 99 per cent of its goal (later reached).

Acting on behalf of all Astro employees here, the Dyess AF Advisory Committee of Con-Trib-Club voted the contribution to help meet the overall goal of $360,000 set for the drive.

Acting for Astro employees at the presentation were Robert Morris, D. E. Bolin and Charles Koberg. Accepting were Leroy Langston and Robert Tiffany, co-chairmen for the drive. Ceremonies were held in the office of Oliver Howard, president of the Citizens National Bank.

IR Alumni of Cal Form Association

An Alumni Association of University of California Extension Industrial Relations Certificate holders has been organized with Yale Naliboff of General Atomic as president and Frank Burr of Astronautics as vice president.

Naliboff estimates a potential of more than 100 members in the San Diego area and suggests that those interested in joining can reach him at 459-2310, ext. 444. A meeting is set for mid-February.

Astro Wives Stage Dance at Dyess Club

DYESS AFB—More than 180 Astronautics employees and their spouses were on hand Dec. 28 when GD/Astro wives staged a dinner-dance at the Dyess AFB Non-Commissioned Officers Club.

The holiday affair was arranged and presented under direction of Mrs. F. R. Key and a committee composed of Mrs. W. A. Striplin, Mrs. J. A. Hammett, Mrs. R. J. Cushway and Mrs. T. H. Heter.

Salvage Schedule Set for February

Salvage yard schedule for the next four weeks at GD/Astro's main plant and GD/Convair Plant 1 is:

GD/Convair—Feb. 1, Feb. 15.

GD/Astro—Feb. 8, Feb. 22.

English Class Begins Feb. 5

In-plant courses at GD/Convair open next Wednesday (Feb. 5) for the spring semester, reminds Wayne Turner, educational services coordinator.

General Dynamics people have until then to register through Convair educational services for any of the five classes.

First class to meet on the opening date is English for Technical Writers, scheduled for Wednesdays, 4:30-7:30 p.m.

The following week (Feb. 10-11) the other courses will hold opening sessions: Intermediate Technical Writing, Mondays; Technical Writing Workshop, Tuesdays; Technical Proposal Writing, Tuesdays; Basic Electricity, Mondays.

All will be three-hour classes, 4:30-7:30 p.m., and will be held in Plant 1's Bldg. 14 classrooms.

Registration may be made by calling educational services office, ext. 491, Plant 1.

Cherry, Handwerker To Teach Classes

Two GD/Astro men will serve as instructors this spring in purchasing and materials management courses to be offered by San Diego City College.

R. L. Cherry, Dept. 831-4, will instruct Introduction to Purchasing, meeting for the first time on Feb. 4, 6:30 to 9:30 p.m., and Ben J. Handwerker, Dept. 405-1, will teach Materials Handling, Traffic, Transportation, beginning Feb. 5, at the same hours. A third course in the series is Materials Cost Estimating, opening Feb. 6.

Classes meet at the college, and carry credit toward the AA degree or certificate. Additional information should be obtained directly from the college.

Mendoza Re-elected To Recreation Post

Ray Mendoza, Astronautics employee services supervisor, was installed for a second term as president of the San Diego Industrial Recreation Council, Jan. 18.

Installation came at a Sands Hotel dinner attended by Astro, Convair and Electronics Division professional and volunteer recreation leaders.

Entertainment included GD/Convair's M. C. Val Dez and Astro's C. C. Jones. C. F. "Biff" Gardner, San Diego County park and recreation director, was installing officer.

Association Seeks SD State Alumni

San Diego State College Alumni Association is seeking to reach former State College students within General Dynamics divisions in San Diego who are not presently Association members.

An intensive membership drive is being held. Benefits include reduced rates to campus events. Former students are invited to contact the Dean of Students office at State College.

Astro Man Authors Currency Catalogue

A new illustrated 1964 catalogue titled "World War II Military Currency" has just been published by GD/Astro's Raymond S. Toy (Dept. 250).

The catalogue, priced at $1.50, includes all known issues of World War II and post war military currency issued by the United States and its former and present Allies.

Tube Simulates Conditions On Surface of Other Planets

A new General Dynamics facility, more advanced than any other in the country, soon will be adding to man's knowledge of interaction of space vehicles with the atmosphere surrounding other planets as studies get under way in the GD/Astronautics physics laboratory.

GD/Astro's 55-ft. long, 24-inch diameter shock tube, now undergoing operational checkouts, is the largest high vacuum facility now available, said W. J. Hooker, head of Astro shock physics research. Hooker has directed the development of the tube since pre-design started just two years ago.

The shock tube, which fundamentally is nothing but an extremely fast oven, explained Hooker, gives a ten-fold increased capability over tubes now generally in use. Another 24-inch tube developed by AVCO-Everett Research Laboratory and used for high temperature air studies, does not provide the pressures of the GD/Astro facility.

Pressures 10 billion times lower than normal atmospheric pressure can be obtained in the GD/Astro tube with temperatures equalling the surface heat of the sun (9,000 to 10,000 degrees F.) obtained in less than one-millionth of a second.

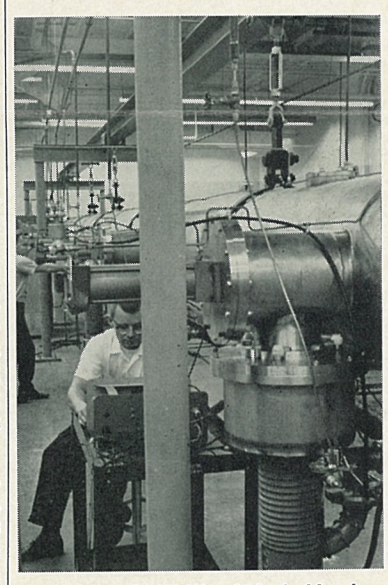
Astro studies will concentrate on combinations of non-air gases, such as carbon monoxide, carbon dioxide, oxygen, which make up atmospheres of other planets.

Shock waves can be sent through samples of gases to generate extremely high temperatures in very short times—total duration of uniform heating runs from 10-millionths to a few thousandths of a second.

During the infinitesimally short times the gases are brought up to the fantastically hot temperatures, properties of the gases—their atoms and molecules—can be studied while yet unchanged. Information on temperature, pressure, rate of heat transfer is converted to electrical signals and recorded on an oscilloscope for later analysis.

"From what we learn about the structure of gases and compounds formed from the gases, we will be able to greatly expand our knowledge of the atmospheric conditions which will be encountered when we launch space vehicles to other planets," Hooker said.

Besides Hooker, Astro men most involved during development of the tube are Thomas Kramer, Steve Tomaiko, both of Dept. 596, and Frank Brown of Dept. 756. The physics research lab is a function of Astro space sciences laboratory under Dr. Hideo Yoshihara.



FAST "OVEN"—W. J. Hooker (foreground) and Tom Kramer, GD/Astro physics researchers, study rate evacuation to ultimate vacuum during preliminary check-outs of new shock tube.

Harry Richards Low With 76

Reservations for ARA Golf Club's tournament Feb. 15 and 16 at Rancho Bernardo will be accepted by ARA Headquarters, ext. 1111, starting Feb. 3.

In the January sweepstakes played in mid-month at the new San Luis Rey course, Harry Richards scored low gross 76 in the 0-12 handicap bracket, followed by Jack Weaver with 77 and Dan Scott with 78.

Low net scores in this category were H. H. Moran's 68, 71 from C. B. Bagaloff, and 74s by Ron Bruck, Bill Kurch, John Sentovic and Phil Raney.

In the 13-16 handicap class, Chuck Petty and J. Bechard shot 84s for low gross, Ray Cleary had an 85, and Jack Albright and Fulton Smith turned in 86s. Low net was 68 from Ray Steinwehe, 72s by Lin Richardson, George Loudermilk and Ed Bourgeois, and 73 from Owen Hasbrooke.

Phil Mattson shot a gross 85 in the 17-22 handicap bracket, trailed by Hank Gallant with 88 and Hal Heist with 89, while net 68s came from Tom Lazos and Martin McEachern, 70 from Dick Marlowe and G. Washburn shot 71.

Among 23-26 handicappers, C. Meinsen's 87 was low gross, Duane Scott tallied 95, and 97s came from Howard Kuykendall and M. A. Murray. R. Morgan reported low net 67, with 70s by G. Cooper and Bill Shiba, and 71 from Louise Kring.

SCHINDLER SCORE NEAR PERFECTION

Al Schindler scored only two points less than perfect, 298 of 300 possible, in the first ARA Pistol Club .22 Camp Perry Police Course match of the year.

Trailing this in master class were two 296 scores by Warren Ranscht and Roscoe Anderson, with 12 and 8 Xs respectively, while Roland Schneider fired 293 and Ralph Sanderlin, 291.

Bill Givens' 285 topped 275 from John Bennett in expert category, and Bill Worthington took the sharpshooter bracket with 262 over Byron Clapper's 223. Lyle Ewing was top marksman with 223.

In a .22 Short National round, Schindler again was high with 287, trailed by Givens' 285, Sanderlin with 284, and Ranscht's 281.

Bridge Fans to Earn Full Master Points

Full master points will be awarded to winners at ARA Bridge Club's next two meetings, Jan. 31 and Feb. 7, 7:30 p.m. in ARA Clubhouse, with fractional points going to those placing second, third and fourth.

College Honors GD/Astro Men

Two Astronautics men, J. Ray Tucker and Robert R. Mendoza, and some 500 members of the San Diego Chapter, National Association of Accountants, have been lauded for their part in Operation Padrino.

Chapter officers, directors and their wives were special guests of the College of Business Administration, University of Baja California, recently. Tucker, past president of NAA, and Mendoza who helped spearhead the effort, received engraved parchment scrolls from Director Antonio Martinez Zarazoza.

Operation Padrino was a chapter project which resulted in collecting and turning over to the Mexican college some 700 sorely-needed text books on accounting. Continuing, the program is now involved in rounding up special lecturers to appear before college classes to explain modern accounting methods. In addition, plans include aiding students with limited funds.

ROLL OUT—As completion nears, A. A. Kovschak (in cockpit) shows off home-built biplane to W. C. Taylor who will test fly it. Plane is third built by Kovschak. He uses garage as assembly "plant." Both men are in GD/Astro Dept. 972.

Hurry With Entries For Coronado Golf

Entries close next Monday (Feb. 3) for CRA's next golf tournament, scheduled the week of Feb. 8-9 at the Coronado course.

Starting times will be assigned Convair and Electronics golfers on a first-come, first-served basis. Call ext. 1705, Plant 1.

Tickets Now Available To Quality Meeting

Tickets to the Feb. 10 dinner meeting of San Diego Section, American Society for Quality Control, now are available from GD boosters.

F. Moore, GD/Convair ext. 663, and L. B. Settle, Astro main plant ext. 2806, will take reservations.

Meeting will be in the Don Room, El Cortez Hotel, with social hour at 6, dinner at 6:30, and business meeting at 8. Price is $3.50 each.

A panel of members of the San Diego Chapter, National Association of Accountants, will discuss "The Finance Organization Views Quality Control Costs."

CONVAIR GIRL LOW IN LADIES' TOURNEY

Margaret Clark of Convair was low scorer in the General Dynamics Women's Golf Club's January tourney at Singing Hills course.

Second spot in the Jan. 11 event was won by Mabel Ericson, and Helen Wood of GD/Electronics was third.

The lady golfers will tee off at Valle Verde course, near Poway, for their next tournament, Feb. 8.

Members of the club, which is open to all GD women, enjoyed a social meeting Jan. 16 at the home of Joy Ward. Excerpts from the film, "Wonderful World of Golf," were shown, and refreshments served.

Group Tours Opened For Reservations

Group tours to Hawaii, Mexico, Alaska, New York World's Fair now are open for reservations by General Dynamics people through sponsorship of the Industrial Recreation Council.

Brochures outlining details — dates, itineraries, prices—may be picked up at GD/Convair employee services, Plant 1.

Research Seminar To Draw Military

R. D. Tuttle, GD/Astro Dept. 316-0, is general chairman for a major research seminar to be conducted in San Diego later this year.

The event is sponsored by Naval Research Reserve Company 11-5 with Office of Naval Research sanction. It is expected to attract more than 100 key representatives of Navy, Army and Air Force research organizations, Department of Defense and NASA.

General Dynamics men participating in the sponsoring unit include Tuttle, Robert Bradshaw, Phillip Syr, A. E. Hunt, A. H. Owens and Victor Zirkuly of GD/Astro, N. L. Wener of GD/Convair, and Charles B. Wagner of General Atomic.

Convair Nine in Tie With Oceanside Team

Convair's baseball nine has a chance to be in the running for the Industrial League championship title if it defeats its close rival, Oceanside, in this weekend's play-off for second-half winner.

Convair pulled itself into a tie with Oceanside when the plant team downed Hazard Block, 9-6, on Jan. 12. It finished second round of league play with a 5-1 record, and stood 4-2 at end of first half.

Oceanside, winner of the first round, and Convair will meet in a play-off game this Sunday, Feb. 2, to decide second-half winner.

If Convair wins this game, the two teams then will go into a two-out-of-three series for the league championship.

New Spanish Courses To Start Next Week

A new semester of beginning and intermediate Spanish courses, taught by James Hardison of GD/Convair, will open next week at Hoover Adult High School, 4474 El Cajon Blvd.

Beginning class will be held Tuesdays; intermediate on Thursdays, both 6:30-9:30 p.m. in Room 219.

Registration will be taken at first sessions—Tuesday, Feb. 4, and Thursday, Feb. 6.

20th Value Seminar To Begin at Convair

Value control seminar No. 20 will get under way at GD/Convair within the next week or two, reported H. P. Williams, manager of value control.

This seminar, first of the current year, will be a full-length workshop course with attendees divided into teams to value analyze actual division projects. A full schedule of seminars is planned during the year.

Discount Offered On Movie Tickets

Discount tickets to Cinema 21, Mission Valley motion picture theater, now are on hand at GD/Convair employee services, Bldg. 32, Plant 1, for all GD/Convair and GD/Electronics people.

The tickets are good for a reduction of 59 cents on general admissions Tuesdays, Thursdays, and Sundays. Regular price is $1.49.

Sports Drivers Tour to Yuma

A weekend trip to Yuma, Ariz., and Parker Dam drew 16 members of the CRA Sports Car Club over the three days, Jan. 17-19.

The group gathered at Flinn Springs, east of El Cajon, Friday evening at 6:45 p.m. to check signals before hitting the road to Yuma. They reached the Stardust Hotel there about 10 p.m., with only one car making the night trip across the desert with the top down!

Saturday was spent driving along the Colorado River to Parker Dam with camera fans among the travelers stopping for good shots. They toured the dam and power house which is automated and controlled by one man.

Sunday, the group divided, some touring the old Yuma state prison which is now a museum and historical site, others driving to San Luis across the Arizona border in Old Mexico, and still others taking it easy around the Stardust pool.

Making the trek were CRA Commissioner Gerry Wright, and wife, Grace; George and Brida Nicoloff, John and Marion Ford, Clark and Roberta Kerr, George and Bobby Wilson, Al and Alice Oehler, Bob and Charlotte Chillo, Fred Thatcher, and Verne Mathews.

Regular meeting will be next Wednesday (Feb. 5) in Convair main cafeteria, 7:30 p.m.

GD/E Team Winner In 'Slow Break' Play

GD/E Material was undisputed winner of the first round of CRA "slow break" basketball play. Its perfect record of five wins-no losses put it into top spot without an argument.

Another GD/E team, the Chargers, was close behind with 4-1. 310 Pubs ended in third place with 3-2. Product Service, also GD/E, had a 2-3 standing; Hi-Lows had only one win to their credit; and Data Processing was in the cellar with no wins.

Last games of the first half on Jan. 14 saw GD/E Material downing 310 Pubs in a close 28-25 game. GD/E Chargers beat Product Service, 25-21, and Hi-Lows had a forfeit from Data Processing.

First matches in the second half, played Jan. 21, found Product Service beating Hi-Lows, 23-20; 310 Pubs over GD/E Chargers, 28-12; and GD/E Material given a win over Data Processing on a forfeit.

Convair's Dr. Steurer To Talk at SAE Meet

Society of Automotive Engineers' San Diego members will hear Dr. W. H. Steurer of GD/Convair speak at the Feb. 11 meeting.

Dr. Steurer's topic will be "Materials Engineering Key to Progress."

The dinner meeting will be held at the Campus Chuck Wagon, 6205 El Cajon Blvd. Social hour is from 6 to 7 p.m., followed by dinner and the program.

Price to members is $3 and non-members, $3.75. Call Gordon Glass, ext. 2384, Plant 1, for information.

Williamson Tops CRA Pistol Shooters

CRA Commissioner Joe Williamson was back in stride as he swept the field in Pistol Club matches Jan. 12.

He was top man in the master class of the .22-cal. Police Course event with a 294 score. His 283 was good for first in the .22-cal. Short National.

Jim Halfacre (Dept. 140), with a 284, was runner-up in the Police Course master class.

W. G. Walker (Dept. 6) was first in expert class with 278 and Ralph Picard of GD/Electronics, second, 274.

Other Short National standings were: Walker, second, 281; Picard, third, 273; Halfacre, fourth, 272.

CRA Calendar

(Convair Recreation Association has some 40 activities in operation for Convair and Electronics people. For information call CRA headquarters, ext. 1245, Plant 1.)

★ ★ ★

AEROMODELERS — Flying sessions Saturday and Sunday mornings, 8 a.m. to 1 p.m., Clairemont Mesa Flying Site.

BASEBALL — Convair vs. Oceanside play-off Feb. 2.

BASKETBALL — Games each Tuesday night, Muni Gym, Balboa Park. Times, 6:50, 7:55, 9 p.m.

BRIDGE CLUB — Play each Wednesday evening open to all General Dynamics people, 7:30 p.m., Convair executive dining room, Pacific Hwy.

CAMERA CLUB — CRA-ARA joint meeting Feb. 2, 7:30 p.m., Photo Arts Bldg., Balboa Park.

FENCING — Workouts and instruction each Friday, 7-10 p.m., YWCA, 10th & C Sts.

GARDEN CLUB—Joint CRA-ARA meeting Feb. 5, 7:30 p.m., Floral Association Bldg. Demonstration of Japanese and modern flower arrangements.

GOLF — Entries open Jan. 29 to Feb. 3 for CRA tournament at Coronado course, Feb. 8-9. Call ext. 1705, Plant 1.

GUN CLUB — Club shoot Sunday (Feb. 2), Gillespie Field Range.

ICE SKATING—Thursday ice skating sessions, Mission Valley Ice Plaza, 6:30-8 p.m.

MOVIES — Reduced prices for General Dynamics people at State Theater, Euclid and El Cajon Blvd. General admission: adults, 75c; children, 25c.

PISTOL CLUB—Regular shoot Feb. 9, 9:15 a.m., San Diego Police Pistol Range, Federal Blvd. and Home Ave.

RADIO CLUB — Next meeting Thursday (Feb. 6), 8 p.m., Harbor Drive club headquarters.

RIDING CLUB—Meeting Feb. 6, 7:30 p.m., Gillespie Field Clubhouse.

ROAD RUNNERS — Weekend outing Feb. 7-9 to Vallecito Stage Station.

ROCKHOUNDS—Meeting Feb. 13, 7:30 p.m., Gillespie Field Clubhouse. Lapidary workshop open Wednesday evenings, 7-9 p.m.

SPORTS CAR CLUB — Meeting Feb. 5, 7:30 p.m., Convair main cafeteria, Pacific Hwy.

SQUARE DANCING — Registration open for new instruction class. Call CRA office, ext. 1245, Plant 1.

STAMP CLUB — Meeting Feb. 6, Convair executive dining room, 7:30 p.m.

SWIMMING — Free family swim night Feb. 15, 7-9 p.m., Mission Beach Plunge. Tickets at employee services.

WATER SKI CLUB — Skiing weekends on Mission Bay on phone-call basis. Call Gene Sevigny, ext. 2701; Jack Loos, ext. 2456, both Plant 1.

Road Runners Head For Borrego Desert

Road Runners have changed the location of their coming weekend outing to Vallecito Stage Station, in the Borrego Springs area, since it has better camping facilities than Peg Leg Monument, their original destination.

The CRA trailer group will spend the weekend of Feb. 7-9 at the desert campgrounds. A $1 fee per unit is charged but water and rest rooms are available. Joe Sopko is in charge of the trip as wagonmaster. Rolland Lathrum is assisting.

Only 15 people in six units journeyed to Salton Sea for the Jan. 10-12 trip. They took full advantage of the mineral baths, movies, and music for dancing at the Spa. On Saturday night they "trailer hopped" for their evening potluck.

HAPPY DAY — Bill Hibbert of GD/Convair wears big grin as he shows co-workers Disneyland bulletin listing him as top winner in photography contest.

Fireworks Shot Wins Color TV

Years of shutter-snapping finally paid off for Bill Hibbert, GD/Convair design engineer, when one of his slides won him the grand prize in the Disneyland amateur photography contest.

A chance glance at an announcement of the contest last fall set him to taking shots around Disneyland and produced the prize-winning 35mm color slide of fireworks bursting in the sky behind the Sleeping Beauty Castle.

His reward: a Magnavox color television-stereo-radio set.

Hibbert said that he has been a camera fan for at least 12 years and former member of the CRA Camera Club. Although he has entered other contests over the years, this is the only award he's ever won.

He took his winning slide with an Asahiflex, Japanese-made single lens reflex camera, lens opening f4, time exposure, using Kodachrome II type A film.

His only worry at press time was whether he'd have a chance to see his new color TV before he was due to leave on temporary assignment at Fort Worth.

Matlock Leads CRA Linksmen

Bill Matlock (Dept. 6) held first low gross score of 79 and Bill Whitley, also Dept. 6, had low net, 72, in CRA's January links tourney at Carlton Oaks Country Club.

Runners-up in the 0-15 flight at the Jan. 11-12 event were Norm Kuntz (Dept. 115), second low gross, 80; and George Kureri (Dept. 115), second low net, 73.

Winners in the 16-24 flight were: Ed Raymond of Dept. 400, first low gross, 86; John Mellett (Dept. 15), second low gross, 88; Jinks Janssen (Dept. 14), first low net, 65; Bob North (Dept. 6), second low net, 72.

25-and-over flight—Ernie Damarus (Dept. 400), first low gross, 90; Ed Hansard (Dept. 6), second low gross, 95.

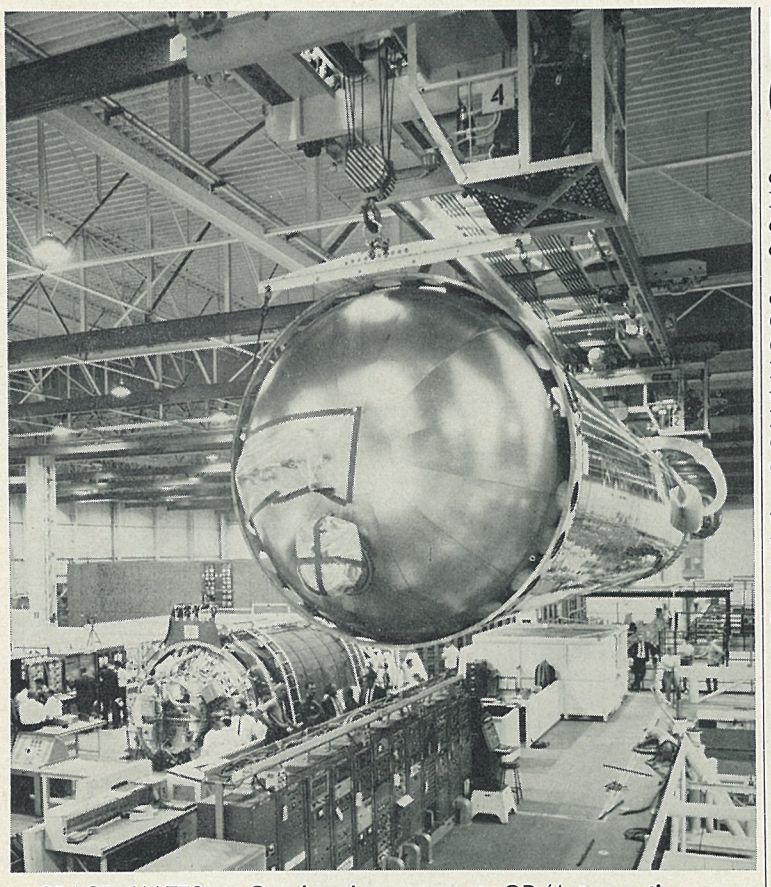
H. Skilton (Dept. 6), first low net, 67; Ron Williams (Dept. 6), second low net, 70.

GD/E Kegler Scores 100 Over Handicap

Frank Quinten of GD/Electronics engineering model shop turned hot a couple of weeks ago to scorch the alleys of Aztec Bowl as he piled up a scratch score 100 pins over his average.

Quinten, who bowls with the GD/E Wednesday mixed handicap league in CRA tourney play, will soon be wearing a Century Club patch, given by the American Bowling Congress for the feat. His high game score was 265 scratch.

He also was eligible for the 250 Club pin.



SPACE MATES — Overhead cranes at GD/Astronautics move Atlas launch vehicle, modified to boost Centaur stage (lower left) into orbit, toward handling trailer. Atlas departed for Cape Kennedy Jan. 17 and will be followed shortly by Centaur vehicle, now in final testing. Combination will become AC-3, third in eight planned research and development flights to refine Centaur to operational status.

Atlas Slated For Centaur Mating Departs For Cape Kennedy by Air

First Atlas launch vehicle for use in Centaur development to be airlifted coast-to-coast departed San Diego for Cape Kennedy, Jan. 17.

Previously, such vehicles were shipped via truck. This was necessary pending completion of a transport trailer that could handle such vehicles and still fit within a C-133B aircraft, traditional Atlas transporter.

(Atlas vehicles slated for use with Centaur are built without the usual tapered forward end and thus require special trailers.)

Meanwhile, the Centaur portion of this space-probing combination is going through final testing prior to being shipped to Florida. On arrival, it will be mated to an Atlas already installed at the launch site.

To be known as AC-3 (Atlas-Centaur Three), the combination is to become the third in a series of eight research and development launches to refine Centaur to operational status.

The last experimental Atlas-Centaur launch (AC-2 launched Nov. 27) resulted in a highly successful flight with the Centaur vehicle continuing to circle the earth in an orbit that may continue some 200 years.

Atlas Missile With Project Mercury Capsule Will Be Seen at New York World's Fair

Work was well under way this month at GD/Astronautics, preparing an Atlas space booster for exhibit in a Department of Defense display at the New York World's Fair, April through October, this year and next.

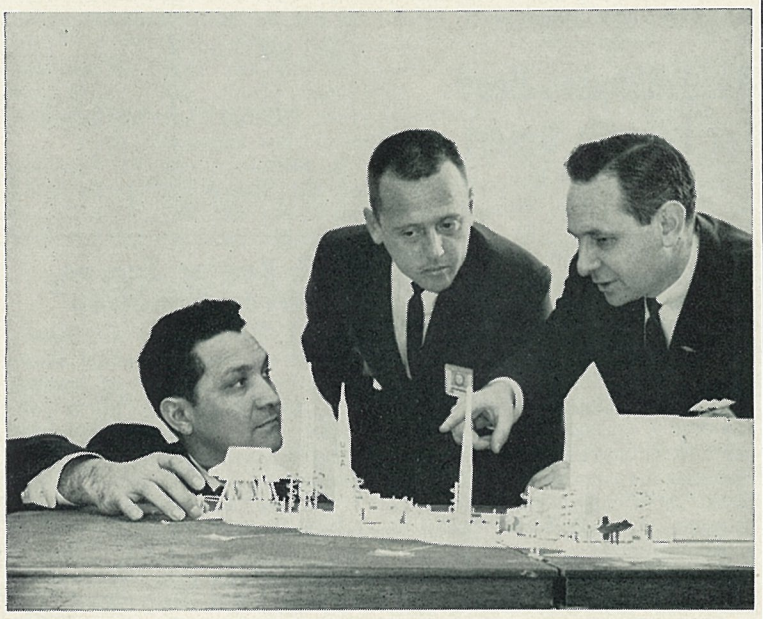
Visiting GD/Astro were two Air Force officers, Lt. Col. Hector Santa Ana and Lt. Col. Michael Orlando, assigned to the DOD project office, for display liaison.

An Atlas, prepared similarly to the one erected in the ARA Area, will feature prominently in the exhibit. It will be in Project Mercury configuration, with a capsule (supplied by NASA's Manned Space Flight Center, Houston) mounted atop the "bird."

In position, the Atlas will be surrounded by countdown panels and a separate Mercury capsule will be shown near by.

W. P. Shine, Dept. 374-3, is coordinating preparation of the display missile, assisted by D. C. McCarthy, Dept. 110-0; Bill McGaw, Dept. 120, and others.

Remember: Wide Area Telephone Service is NOT a free service! Each call costs money.



FOR DISPLAY — Air Force Lt. Col. Hector Santa Ana, left, and Lt. Col. Michael Orlando, right, point out prominent position Atlas missile will take in World's Fair exhibit of aerospace capability, to GD/Astro's Don McCarthy, Dept. 110. Division will prepare missile in manner similar to that used for Atlas in ARA Area.

FAA Will Use GD/E Displays

Display tubes produced by General Dynamics/Electronics at San Diego will be used in a new Federal Aviation Agency air traffic control radar system.

The new system is the heart of FAA's recently-commissioned Great Falls Air Route Traffic Control Center at Malmstrom Air Force Base, Mont., co-located at the Air Defense Command's Great Falls SAGE (Semi-Automatic Ground Environment) Direction Center.

The FAA center will make joint use of ADC's operational facilities and equipment to provide air traffic control service to civil and military aircraft operating in some 135,000 square miles of air space over Montana and the western half of North Dakota.

Information on air traffic control received from radar and other sources will be displayed on the CHARACTRON[R] Shaped Beam Tubes, provided by GD/Electronics, to give a detailed picture of aircraft flying through the sectors.

The CHARACTRON tube is an improved version of a display tube originally developed for SAGE.

Gen. Dynamics Director Dies

Ellsworth C. Alvord, a member of the board of directors of General Dynamics Corporation, died Jan. 16 in Palm Beach, Fla.

Alvord was a partner of the Washington, D. C., law firm, Alvord and Alvord, which for many years has served as special counsel for General Dynamics. Alvord became director of General Dynamics in 1954 when Convair was merged into the corporation.

E. C. Alvord

He was born in Washburn, Wis., in 1895; received his AB degree from the University of Wisconsin in 1917 and his degree in law from Columbia University Law School in 1921. He was admitted to the New York bar the same year.

He served as assistant legislative counsel of the U. S. Senate from 1921 to 1924 and of the House of Representatives from 1924 to 1926. For the next four years he was special assistant to the Secretary of the Treasury.

He served as chairman and vice chairman of various taxation committees of the International Chamber of Commerce, was general tax counsel of the American Mining Congress, and author of a book and articles on taxation.

Third Garuda 990A Leaves

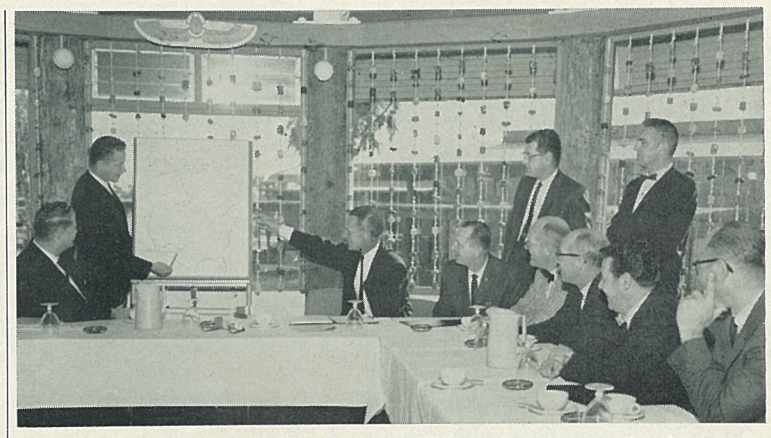
Third and last Convair 990A jetliner to go to Garuda Indonesian Airways was due to leave the San Diego plant last Saturday on its transoceanic flight to Djakarta.

Aboard were W. R. Bruce, director of operations, representing the company on the delivery flight, and R. K. Hall of customer service, who is making a maintenance service visit to Garuda.

Convair flight crewmen were Sherman Johnson, pilot, and Joe Coil, flight engineer.

Garuda personnel were Soejono and Lumanauw, both captains; H. W. Campbell and Suwarno, navigators; and Dudung, who had been at the Convair plant as a Garuda inspector.

J. Thetekdjoe, Garuda's customer representative at Convair throughout preparation and delivery of the three 990As, intends to remain in the United States for awhile for further visits with General Electric Co. and Convair before returning to his home country.



TROUBLE-SHOOTING — General Dynamics communications men meeting with phone company representatives in San Diego to thresh out common problems are, from left: R. H. Williams, Convair; James E. Eyre of AT&T Co.; G. R. Stewart of Pacific Telephone Co.; John B. Gosman, Pomona; J. G. Godfrey and R. W. Kleinhans of Astronautics; T. A. Anelli, General Atomic; and (standing) A. E. Degler of Electronics - SD; Vic Janusz of Convair.

Communicators Confer On Mutual Headaches

Communications specialists from five General Dynamics divisions were hosted by the American Telephone and Telegraph Co. and Pacific Telephone Co. at a one-day meet in San Diego the middle of this month to consider mutual telephone problems and solutions; activities and policies of the phone companies.

Budget control was the main topic as eight GD delegates exchanged ideas on reduction of phone expense within their respective divisions. Pomona's John B. Gosma and J. F. Dacolias startled the group by describing the savings to that division during the last three months, when no office moves of consequence have been possible with the local telephone company on strike.

According to their report, the enforced "stay put" status has revealed that much shifting of desks, and consequently, phones, is non-essential and can be eliminated at a great saving.

Other cost problems, common to all divisions, include control of long distance calls, use of company phones for personal calls, and length of calls.

Discussion disclosed that all plants are plagued by indiscriminate use of company phones for non-business calls, especially the so-called "short haul" calls within distances of only 10 or 15 miles, but which run into thousands of dollars a month.

Average length of regular long-distance calls, 10-11 minutes, should be cut in half, was the unanimous opinion.

A questionnaire to determine need for special circuits between specific points will be formulated for use of GD divisions following adoption of a suggestion of R. H. Williams, Convair communications coordinator.

Pacific Telephone's major account manager, G. R. Stewart, who is assigned to General Dynamics divisions in the San Diego area, outlined that company's organization and plans for the year.

New and existing equipment and systems, which might prove technically and economically useful to General Dynamics divisions, were outlined by James E. Eyre, San Diego representative for AT&T Co.

GD men at the sessions were: Williams and Vic Janusz of Convair; R. W. Kleinhans and J. G. Godfrey of Astronautics; A. E. Degler of Electronics-San Diego; T. A. Anelli of General Atomic; and Gosma and Dacolias of Pomona.

Next such meeting will be held in May with Fort Worth representatives expected.

Fort Worth Couple Hikes Four Miles Through Record Snow to Get to Work

Neither sleet nor a 12-inch snow — heaviest in Fort Worth's history — could keep the Pierces from their posts Jan. 16.

Dotty Pierce, a Dept. 187-2 steno at GD/Fort Worth, and husband Bob, Dept. 21-1, hiked over four miles to work after their car became snowbound.

The couple left their home at 7:30 a.m. and arrived at the plant at 9:10 a.m. Bob was dressed "as usual," but Dotty donned—among other things—capri pants, skirt, a teen-ager's sweatshirt and loafers for the trudge through the foot-deep snow. Other employees came attired in everything from combat boots to ski suits.

Most other GD/Fort Worth employees made it to work, albeit in a more conventional manner, but a lot of automobiles were stranded and a number got stuck in parking places.

Regular airplane-moving tractors and 20,000-pound maintainer trucks—normally used to level roads—were called on to clear snow and ice from Grant's Lane and other regularly traveled ways around the GD/FW plant.

SNOW IN TEXAS — Near GD/Fort Worth plant, Linda King, GD/FW Dept. 24-6, is shown in Texas boots she wore during record snowfall. Many hiked to work when autos stalled. One couple, Dotty and Bob Pierce, plowed afoot 4 miles through foot-deep snow on Jan. 16.

GD

SAN DIEGO EDITION
(Serving GD/CONVAIR
and GD/ELECTRONICS)

GENERAL DYNAMICS NEWS

Vol. 17, No. 4 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, February 12, 1964

WHO GOES THERE?—Security guard demonstrates application for new GD/Electronics-San Diego Hand-Held Radar. Even in complete darkness, radar would warn of intruders. Story on page 6.

Early Value Studies Cut Purchasing Costs

Constant procurement cost control and mutual efforts of purchasing and engineering at GD/Convair play an ever-important role in the division's cost savings program, saving into the millions of dollars.

W. H. Parry, general purchasing agent, pointed out that "the division's present cost controls, though in effect for several years, were implemented to achieve the very goals outlined in Secretary of Defense McNamara's cost reduction objectives; namely, to buy only what is required to do the job at the lowest sound price."

COST-SAVING TRIO — Buyer "Bert" Wilson consults with McIrwin Swinney (left), material project coordinator, and Robert Westbrook, structures design specialist, as they analyze vendor's proposal for material improvement in GD/Convair purchasing's constant campaign to seek new ways to keep material costs at minimum.

He went on to say that "the key to successfully attaining this goal has been the mutual spirit of cooperation between purchasing and engineering.

"Working together from the predesign level until end-item delivery, purchasing and engineering have been highly successful in reducing cost without sacrificing product integrity. This is accomplished by reviewing design objectives, screening applicable specifications for areas of possible relaxation, investigating utilization of standard parts, and looking at the estimated cost of a part versus its application."

Among controls which assist in containing program costs is a Purchase Parts Cost Control Forecast which is prepared at the pre-proposal level and establishes targets to be used as design and procurement "bogies." Any part which cannot be procured within the established target is resubmitted to value analysis for further study.

In conjunction with this activity, suppliers are solicited continuously for less costly means of accomplishing a given function. A Value Analysis Check List is a part of each quotation for non-standard parts with an anticipated value in excess of $50. The potential supplier is required to respond to a series of questions designed to stimulate cost savings suggestions. Supplier response has saved thousands of dollars to date.

To provide further stimulus to this all-important program, 90 per cent of the buying personnel as well as representatives from selected suppliers have attended the division's value control seminars.

Price/Cost Analysis has been another effective means of reducing costs, Parry said. Selected procurements are subject to detailed analysis by pricing experts and conclusions used in negotiating the most advantageous end price.

An example of the benefits realized by application of these cost control techniques is the fact that over $2-million were saved for the Air Force on the

(Continued on Page 2)

Con-Trib-Club Votes French as Treasurer

H. C. French was elected treasurer of GD/Convair Employees' Con-Trib-Club Committee at its Jan. 21 meeting.

French (Dept. 48-51) succeeds Gladys P. Story, member of the Con-Trib group since its formation nearly 12 years ago, no longer with the company.

Both French and Richard Fitzgerald (Dept. 401-5) are new I.A.M. representatives on the committee. Other members are J. K. Field, representing the company, chairman; F. H. McLaughlin, company representative; Ralph Montgomery, Management Club; J. R. Benedict, management; W. A. Ebel and D. D. Strange, EAA representatives; and E. E. Larsen, IBEW.

Holding Costs No. 1 Priority Says Lombardo

Two hundred GD/Electronics-San Diego Management Club members heard how they can help win contracts for their division at a Jan. 23 meeting when a panel, headed by General Manager John L. Lombardo, answered queries about GD/E's business prospects.

"The most important thing management can do is to get costs down to keep prices competitive, and teach the people under them how to do the things that must be done at a lower cost," was repeated again and again as panelists were called to the lectern in Catamaran Hotel's Kon-Tiki Room.

"We must watch every dollar we spend," Lombardo emphasized.

"We are in business to give our customers a quality product and to make a reasonable profit for the Corporation as a whole, and if we don't we won't be in business long.

"Every man and woman in supervision can be alert to the responsibilities of his or her job and see that everyone under him does the same. It is imperative that we have a low-cost, efficient organization to compete successfully for business.

(Continued on Page 2)

Shannon Gets GD/E Data Post

Carl V. Shannon has been named program manager for data products at General Dynamics/Electronics-San Diego, according to an announcement by John L. Lombardo, general manager.

In his new position Shannon will coordinate all activities for

Jim Redman Carl Shannon

GD/E's line of computer peripheral equipment and systems.

Shannon joined GD/E in 1960 as assistant program manager for the Project Mercury Control Center. Since then he has held supervisory positions in the division's engineering, systems, and marketing departments.

Before joining GD/E Shannon was contract manager and project engineer at Motorola, Inc.'s Western Military Electronics Center in Scottsdale, Ariz.

He holds a BSEE degree from Stanford University and has taken graduate courses at the University of Southern California, UCLA, and the University of Arizona.

Assuming Shannon's former responsibilities is James H. Redman who has been appointed manager of government requirements-data products by J. W. Colvin, manager of plans and programs.

Redman has been with GD for 10 years, most recently as GD/E requirements engineer. He holds a BSE from San Jose State College and has done graduate work at the University of California.

He currently serves as president of the San Diego Chapter of the Society for Information Display.

New Foundations Laid by Convair

A "solid rebuilding" of General Dynamics/Convair is well under way Division President J. H. Famme told the more than 200 attending the first "Industry Night" sponsored by the San Diego section, American Institute of Aeronautics and Astronautics, Jan. 28.

"Because expansion of our research and development effort is of paramount importance for future success, we have started our rebuilding process in engineering," he said as he outlined Convair's guideposts for the years ahead.

"As we rebuild our engineering department, we are not overlooking the vast changes occurring in fabrication technologies. As a result, we're placing more emphasis on manufacturing research with top talent to do the job."

He pointed out that the ingenuity and creativity of Convair's engineering is "the secret of the division's success in the past and the key to its future success."

In the same breath, Famme emphasized the importance of proper management philosophy to foster this spirit of ingenuity and creativeness.

"I am certain that we have made more major changes and reoriented our objectives to a greater extent in the past two years than we had in the previous ten.

"We have stressed the need for new and better ways to do the job. Nothing is too extreme to give it a try — or at least a good going over.

"We have totally eliminated the old bugaboo of 'higher authority says.' This is an old excuse — really an old excuse for doing nothing."

He credited the division's continuing value engineering program with creating a healthy attitude throughout the plant — in teaching people: to decide what has to be done; to set a value on it; to do it at the lowest possible cost.

"This is not just a program we give lip service to. We've implemented it and made it work."

Famme made it clear that Convair is well-equipped to tackle major programs as he outlined the division's wide range of equipment and facilities.

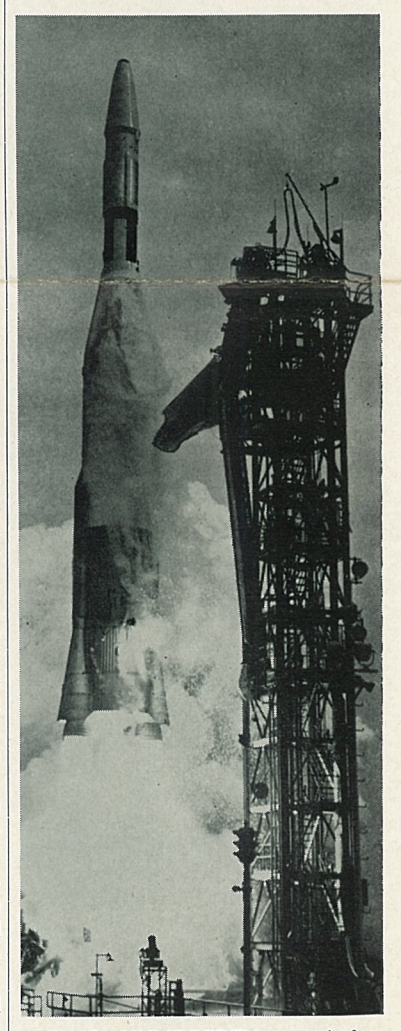
However, although he indicated that there would be a slow, but steady, employment increase starting the last of this year, he said that the character of today's aerospace industry probably will not permit the division to reach former levels of population.

In summing up, he listed three main ingredients that will insure Convair's future success: management philosophy that stresses the creative environment and the simple approach; more value to the customer for each dollar spent; hard work and plenty of it.

In conclusion he said that Convair made a good profit in 1963 and has firm prospects for a profit in 1964. "As long as we are making a profit, we will continue to be in business."

Famme was followed by W. W. Fox, director of engineering, who reviewed Convair's engineering and research facilities and current research and development programs.

J. B. Hurt, manager of the Little Joe II program, showed a pictorial history of the production and successful firing of the first launch vehicle built for NASA's Apollo program.



TWO HUNDREDTH — Atlas 199-D lifts from Cape Kennedy Launch Complex 12 in historic 200th flight of nation's first operational ICBM and space launch vehicle.

More Space Missions Are Ahead For Atlas

When Atlas 199-D sent the Ranger A spacecraft on its way to the moon last month, it marked the 200th flight of the space-age classic created by General Dynamics/Astronautics.

In the short years since its maiden flight in 1957, Atlas has done job after job with astounding reliability.

Sometimes this meant "flexing its muscles" as the Atlas Weapon System (AWS), holder of the world's record for the longest on-target flight of an inter-continental ballistic missile (9,054 miles). On other occasions, in its Space Launch Vehicle (SLV) configuration as for Ranger, it was called upon to hammer back the veil of space to the very doorstep of the universe.

But even with the milestone of its 200th flight behind it, Atlas is no retiring work horse. Reliability, versatility and prospects for even heightened performance, have assured that it will be used throughout the 1960s for more space missions than ever before by both the Space Systems Divisions of Air Force Systems Command, and the National Aeronautics and Space Administration.

GD/Astronautics President J.

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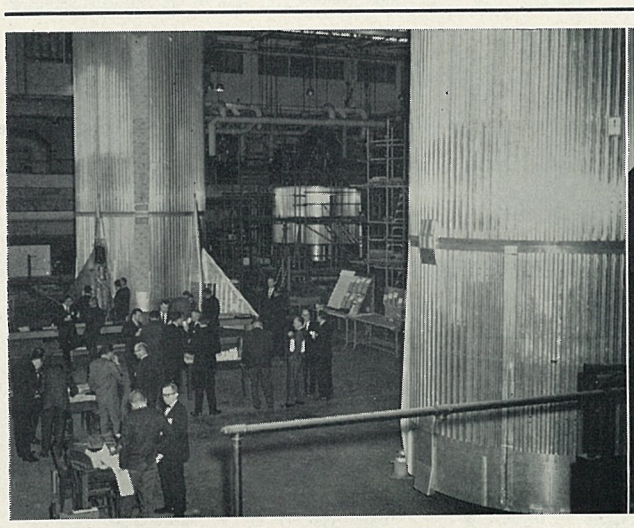

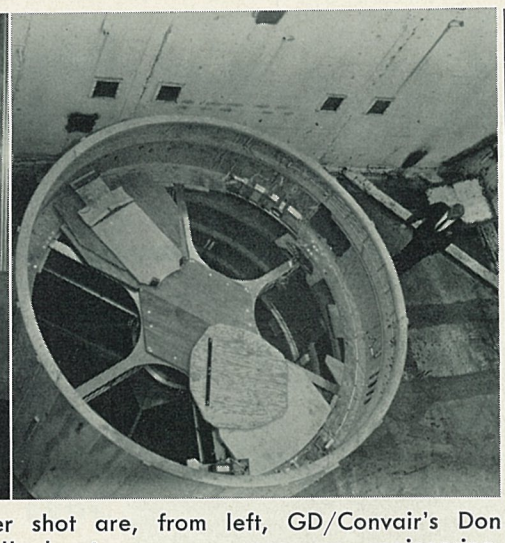

APPROVED—At left is shot of NASA review team in production area for Little Joe II launch vehicles during Feb. 1 inspection of GD/Convair thrust termination system. Test setup of system is shown at far right during checkouts in ramp's hydrostatic test tank. In photo is Dick Romanowich, engineer in charge of test. Consulting, in center shot are, from left, GD/Convair's Don Moody, Little Joe II deputy program manager - engineering; NASA's B. J. McCarty, W. W. Petynia; J. B. Hurt, GD/Convair Little Joe II program manager; J. W. Dodson who headed NASA review group.

Log Book Entries

Josef A. Smole, Dept. 6-2, wears 25-year emblem presented to him last month by GD/Convair's vice president - engineering, C. W. Frick.

Service Emblems

CONVAIR

Service emblems due during the period Feb. 1 through Feb. 15.

Twenty-year: Dept. 6, W. T. MacCarthy, C. D. Minor; Dept. 16-7, M. R. Hutchison; Dept. 102, R. B. Buchanan.

Fifteen-year: Dept. 6-25, H. T. DeMers Jr.; Dept. 48-11, Lela C. Guest.

Ten-year: Dept. 11-0, R. K. Gottschall; Dept. 16-1, P. E. Neff; Dept. 97-4, Jayne C. Nesbit.

ELECTRONICS

Ten-year: Dept. 80-00, Charles Licastri.

Retirements

CONVAIR

ARMSTRONG—Glenn A., Dept. 401-7. Seniority date March 20, 1947, retirement effective Jan. 31.

AVERY—Russell, Dept. 133. Seniority date Jan. 21, 1948, retirement effective Jan. 21.

FLOWER—Judson H., Dept. 171. Seniority date Aug. 23, 1950, retirement effective Nov. 17, 1963.

FROSHAUG—Fred J., Dept. 101. Seniority date Oct. 14, 1946, retirement effective Jan. 3.

HOFFMAN—Valentine, Dept. 48. Seniority date April 11, 1952, retirement effective Jan. 13.

HOGGE — Leonard W., Dept. 48-17. Seniority date Jan. 10, 1951, retirement effective Feb. 3.

HUGHES—Laverne W., Dept. 48-90. Seniority date Oct. 10, 1940, retirement effective Jan. 30.

MAC KINNON — Joseph A., Dept. 401-4. Seniority date Oct. 25, 1956, retirement effective Aug. 22, 1963.

NUTTALL — Fern W., Dept. 171. Seniority date May 27, 1947, retirement effective Jan. 28.

PITT — Mary E., Dept. 129. Seniority date Oct. 30, 1950, retirement effective Jan. 31.

PRINTZ — Clark, Dept. 31. Seniority date Sept. 25, 1947, retirement effective Jan. 31.

QUICK — Etsel E., Dept. 171. Seniority date April 10, 1951, retirement effective Jan. 6.

TARR — Horace D., Dept. 3-1. Seniority date Jan. 7, 1952, retirement effective Jan. 31.

TEFFT — Marion G., Dept. 48-11. Seniority date Oct. 23, 1950, retirement effective Jan. 17.

ELECTRONICS

NICOLI — Lippay Joseph, Dept. 72-00. Seniority date June 20, 1949, retirement effective Feb. 3.

Births

CONVAIR

JAMES—Daughter, Kathryn Beth, 7 lbs., 14 oz., born Jan. 23 to Mr. and Mrs. Curt James, Dept. 14-5.

Deaths

ELECTRONICS

DULAWAN — Antonio, Dept. 66-00. Died Jan. 19. Survived by wife and five children.

Awards

CONVAIR

Employee Suggestion awards approved for period ending Jan. 31.

Dept. 115, J. B. Hinojos, $31.60.

Dept. 119, L. O. Smith Sr., $10.

Dept. 128, V. L. McKerrihan, $10.

Dept. 131, C. R. Yokley, $81.20.

Cost Improvement Proposals approved for periods ending Jan. 24 and Jan. 31.

Dept. 48, G. R. Bailey and R. C. Fildes (Dept. 34), joint proposal.

Dept. 119, L. W. Stamper.

Dept. 131, H. M. Woodard and H. A. Mohr, joint proposal.

Personals

CONVAIR

The family of Robert Steele (Dept. 148, Astro) wishes to express its deep gratitude to his friends and co-workers who have shown their love and respect in so many ways during the past days.

Mrs. Betty Steele
Kathy, Pat and Tom.

Rider-Driver

CONVAIR

RIDE WANTED—3:30 p.m. to 12 midnight, from LaCresta to Plant 1. Alice Donovan, Dept. 27, ext. 691, or home phone, 444-3379.

NASA Review Team Approves Thrust System For Joe II

GD/Convair's thrust termination system, developed for use on the second, and probably the third, Little Joe II launch vehicle, was approved by a NASA review team Feb. 1 at the San Diego plant.

The system is designed to terminate thrust of Little Joe II's Algol motor and simultaneously send an abort signal to the command module of the North American boiler plate payload.

The GD/Convair system, installed in a simulated Little Joe II upper section, has undergone two successful test firings at the seaplane ramp.

Second Little Joe II vehicle, due to move out of GD/Convair this week for White Sands Missile Range, had been previously accepted in a similar NASA design engineering inspection last fall.

Heading the NASA review group was J. W. Dodson of the Manned Spacecraft Center, Houston, Texas. Others were R. E. Clickner, L. M. Jenkins, S. C. Jones, B. J. McCarty, R. N. Messier, G. Page, W. W. Petynia, J. G. Presnell, W. Simmons, all from MSC; W. G. Frye, G. Good, P. E. Reyes from WSMR; and E. Smith from Resident Apollo Spacecraft Office, Downey.

F. H. Wallbrink represented the Navy BUWEPS office. J. F. Procter was North American Aviation delegate, and G. Ratkovic represented Aerojet-General Corp.

Value Studies Conducted Early Reduce Costs in Purchasing

(Continued from Page 1)

Rapid Tune Magnetron package by just such action, he pointed out.

In another recent instance, one buyer, Bertha Wilson, worked with engineering and the suppliers to save the division nearly $45,000 in material cost. This effort also greatly improved GD/Convair's competitive position in obtaining the C-141 empennage follow-on contract.

On another program, a pressure switch was called out by engineering which could not be procured for the target price. Through an intensified joint effort on the part of engineering and purchasing, a total of 12 potential sources were solicited. It was found that by changing the specification slightly, an existing switch could be used which reduced the cost from a target of $97 to $37 each on a 250-piece procurement, and also reduced the estimated qualification cost from $5,500 to zero. This amounted to a savings in excess of $20,000 on one small procurement. Other non-recurring costs associated with development of a new part also were eliminated by this action.

According to Parry, these are only three specific examples of the results of efforts to control program costs and to develop cost consciousness throughout the procurement function.

Convair Son Among Seagoing Students

GD/Convair son Thomas Langpap was among the dozen San Diego area students who docked in home port last week with the University of the Seven Seas.

Tom, son of V. P. Langpap (Dept. 6), and the other 270 students aboard have traveled around the world since embarking last October.

Compass Rose Auto Parking Discontinued

Employees' parking lot at the Compass Rose, adjacent to GD/Convair Plant 1, was closed Feb. 1 with the expiration of lease on the property.

Convair personnel are asked to use other parking areas.

Holding Costs No. 1 Priority

(Continued from Page 1)

"Too, management can help gather intelligence. We must know everything we can find out about acceptance of our own products, and what kind of products will be needed in the years ahead both in the military and commercial fields. We must be sure that what we're working on will sell."

Production of GD/E's advanced radars — specifically, the proved-out Terrain Following Radar and the newly-developed Aircraft Station Keeper; opportunity to move into the space radar field; expanded capability of GD/E display systems with development of higher-speed circuitry and exotic applications of the CHARACTRON[R] shaped beam tube were listed as a few of the solid cornerstones for increased business prospects.

Lombardo, who flew in to San Diego that evening from a cross-country trip especially for the significant session, and seven members of his staff gave Management Club members straightforward answers to every question submitted. In addition to Lombardo, panelists were: J. L. Brooks, manager of research and engineering-sensor products; A. H. Wisdom, manager of research and engineering-data products; J. W. Colvin, manager of plans and programs; H. F. Johnson, controller; H. J. Stuart, manager of reliability and quality control; J. P. Syren, manager of contracts; L. A. Wood, manager of material.

New GD Profiler Makes First Cuts

Production operations at General Dynamics/Convair have taken a giant step into the world of automation with installation of one of the most updated and accurate tape-controlled profiling machines currently available.

The new Giddings and Lewis continuous path profiler, controlled by a Bendix Dyna Path system, now is installed in Bldg. 1 at Plant 1. First actual milling was started in mid-January on C-141 horizontal stringers with plans to keep the huge automated profiling machine busy on other Convair hardware programs in the months to come.

The machine, one of the latest generation of tape-controlled profilers, was built to GD/Convair specifications. It is in addition to the MilwaukeeMatic milling machine installed over a couple of years ago but has the increased capability of operating in three dimensions.

GD/Convair's profiler will cut run time by at least a third, save manhours, and money, in machining and tooling, says O. C. Banke, machine shop foreman. Most important of all, to meet the ever-increasing demands for extreme accuracy of parts, tolerance quality is doubled. The entire system has an overall accuracy of .0002, with positioning accuracy as close as .0005, and cutting tolerances within plus or minus .002.

The variable speed head, which can be operated at speeds from 20 revolutions per minute to 2,400 rpm, can machine any type of ferrous and non-ferrous material —all types of steel, aluminum and aluminum alloys, titanium, magnesium.

The head can make cuts as deep as 18 inches and travel 150 inches a minute at top speed. Clearance is allowed for heavy parts as thick as 42 inches. Bed dimensions are 48 inches in width and 196 inches in length.

The improved control system uses perforated Mylar tape which goes directly from the computer to the machine, eliminating steps necessary with magnetic tape. It is equipped with a photo-electric reader, nearly 15 times faster than mechanical readers. An automatic rewind permits locating back and forth to any particular point upon command, and readout instruments tell where the operation is at all times in relation to a given reference point.

R. F. Schweitzer of numerical control, who has headed programming for the new profiler, says that any configuration can be generated and circles and curves programmed.

Three expert milling machine operators have received special training by factory representatives to keep pace with the advanced automatic equipment, and all are going on to take special courses, said Stan Penziul. Penziul himself is planning to take specialized training in numerical control machining methods to keep abreast of present-day automation.

GD/Convair's J. W. Huss supervised installation, coordinating with Giddings and Lewis and Bendix Corp. representatives.

STRAIGHT ANSWERS — GD/Electronics - SD General Manager John L. Lombardo answers Management Club questions on division's business outlook at Jan. 23 meet. Seated at head table are other members of executive panel and club officers (from left) C. E. McGehee, R. L. Brouillard, J. E. Syren, J. L. Brooks, H. F. Johnson, L. A. Wood, A. H. Wisdom, J. W. Colvin, H. J. Stuart, T. E. Morris, L. A. DiVincenzo, N. J. Barnes. Club president D. A. Graybill chaired session.

General Dynamics NEWS

Published by General Dynamics Corporation, One Rockefeller Plaza, New York 20, N. Y.; with editorial headquarters at 3302 Pacific Highway, San Diego 12, Calif., P.O. Box 1950, telephone 296-6611, ext. 1071. Logan Jenkins, editor-in-chief.

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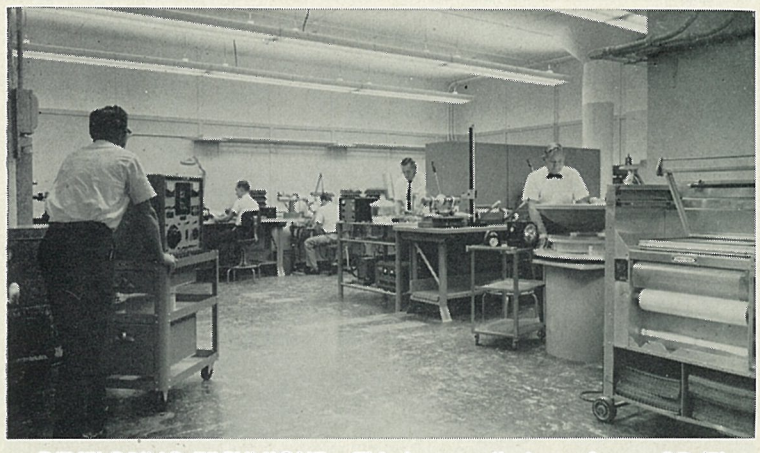
Affiliated editions of General Dynamics NEWS are published in Rochester, N. Y., covering GD/Electronics and Stromberg-Carlson, editorial offices, 100 Carlson Road, HUbbard 2-2200, ext. 2555. Fred E. Voss, editor; and at Groton, Conn., covering GD/Electric Boat, editorial offices at Groton, HIlltop 5-4321, ext. 300 and 513, Joseph Tracey, editor.



DEVELOPING TECHNIQUE—This is overall view of new GD/Electronics manufacturing development laboratory at San Diego, used to prove out advanced techniques and originate others.

GD/E Lab Hunts New Methods In Race to Retain Leadership

Development phases are getting under way in GD/Electronics-San Diego's new manufacturing development laboratory which is destined to play an important part in providing the nucleus for new business for that division.

"We can't and won't sit still," was the way George Patrick, GD/E supervisor of advanced methods, expressed it. Patrick is responsible for the laboratory facilities under J. P. Morris, manager of production engineering.

"Manufacturing methods are changing constantly," he continued. "We must continuously explore, survey, and devise new combinations of technology to keep GD/E a leader in the electronic field."

That is the purpose of the GD/E manufacturing development laboratory.

It is defined as a "combination of various specialized equipment which is available to all engineers working on special projects, and which will be used to convert basic sciences of technology into practical manufacturing techniques."

Before any new manufacturing technique is put to use in GD/E operations, it will be put to the test in the manufacturing development laboratory. Cost of the process, its advantages and disadvantages, type and cost of equipment required, number of man-hours necessary will be worked out right down the line in the lab.

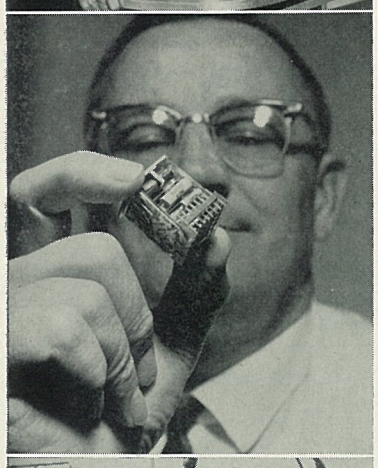
In the short time that the lab has been in operation production engineers already have proved out advanced equipment, made to GD/E's specific needs, which will help keep the San Diego plant ahead of the crowd.

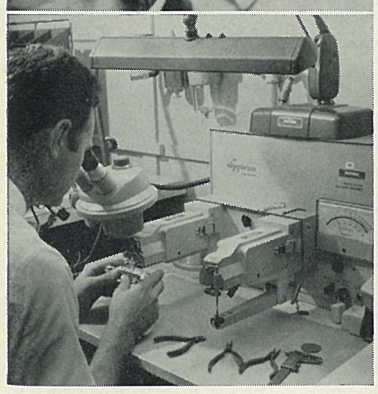
One item of manufacturing equipment, now in use in GD/E Plant 2, was designed by production engineering to secure components to printed circuit boards while they are dipped in solder. A standard vacuum pack machine was modified to skin pack electronic components with plastic so they are held in place during the dipping process.

Now, engineers are taking a good, long look at micro-miniaturization in all its phases, said E. M. Starkweather, supervisor of assembly methods and planning.

They are well into the field—working on the reduction in size of all electronic components to reduce weight and increase function for smaller and more powerful units. Circuits which formerly took up a cubic foot of space now can be contained within scope of a thumbnail. Welding and soldering techniques consequently must keep pace. So, subminiature welding techniques under microscopes are being used in the laboratory. And, in the same area, engineers are attaching subminiature circuits on flexible sub-strata to find ways to get as many circuits as possible in compact areas as they work out applications for future space vehicles.

Other lab projects include investigation of new potting and metal forming techniques; improved methods of handling wires for harnesses and assemblies; and optimum cleaning processes. And, from these studies, GD/E engineers make sure they will evolve the means to keep GD/Electronics-SD abreast and ahead of the "state of the art."





From top down: George Patrick, supervisor of advanced methods, pictured in laboratory; E. M. Starkweather holds 3D welded electronic module; Jack Helton welds module under microscope.

48 Yrs., Never Late Undefeated Champ

Until someone challenges him, which isn't likely, Joseph R. Vella, who retired last month from Stromberg-Carlson, is the undefeated attendance champion of General Dynamics.

He has been with the company nearly 48 years and in that time has never been late and never lost a day to sickness!

"We had to come to work in the early days whether we wanted to or not, and it just got to be a habit," he explained. He was assembly foreman for special phones and relays on retirement.

Navy, GD/E Printing Technique to Cut Cost of Catalogues

A new electronic printing technique, developed jointly by the Navy Publications and Printing Service and General Dynamics/Electronics-San Diego, may cut production costs of printed catalogues as much as 40 per cent, Navy tests indicate.

By the method, which transfers catalogue information from magnetic tape to microfilm pages, information stored in a computer is fed into GD/E's S-C 4020 computer-recorder which can convert the data from magnetic tape to letters, figures, graphs, and charts.

Transfer of information to microfilmed pages (88 lines per page) is done at a speed of 7,000 lines per minute. The new system electronically reduces letter width and white space between printed lines and letters with little or no loss in readability. The microfilm is used to produce black and white page proofs, as well as negatives from which offset printing plates are made.

The Naval Aviation Supply Office, Philadelphia, Pa., applied the technique to printing one section of its stock list catalogue. In the test run, the one section shrank from 28,000 to 16,000 pages. The Navy estimates it saved $68,000 of the normal $141,000 cost of this particular catalogue section.

The test was so successful that future NASO stock list supplements will be printed by the new method.

BROCKIE SPEAKS ON ARBITRATION

D. P. Brockie, FW labor relations administrator, spoke on "Conducting an Arbitration Hearing" at a two-day institute at SMU Feb. 3 and 4. Theme of the institute was "What the Line Foreman Needs to Know About Arbitration."

High Speed Printer System Developed For Reporting Rocket Engine Data

Engineers at GD/Electronics-San Diego and Jet Propulsion Laboratory have combined to design a special high-speed printing system which can print over 10,000 words per second.

The printer, recently installed in the Edwards Air Force Base, Calif., facility of Jet Propulsion Lab, is used to record data received from the testing of rocket engines being developed for deep space applications.

In a matter of seconds, test data which has been recorded on magnetic tape in digital form is converted to high quality characters and printed on paper copy for immediate evaluation. Before this, information could not be available for hours after a rocket engine test. At the Edwards AFB installation, the system operates at a normal printing rate of 20,000 characters per second — but has been operated at speeds up to 71,000 characters per second!

The equipment consists of a modified S-C 3070 Electronic Printer. The heart of the modified printer is a special CHARACTRON[R] shaped beam tube with a fiber optics faceplate which provides a full 8½-inch wide recording surface.

Seven million tiny light pipes, each smaller than a human hair in diameter, are bundled together into the fiber optics faceplate which is embedded in the screen of the special cathode ray tube. The fiber optics plate eliminates need for a conventional lens system and is responsible for the great speed and high quality printing in the system.

The new system was designed to give JPL a low-cost, quick-look device which will print characters at the same rate as they are recorded on magnetic tape.

Higgins Will Head Defense Transport

J. W. Higgins, GD/Astronautics traffic supervisor, has been elected president of San Diego Chapter, National Defense Transportation Association. He was installed Jan. 28.

The local group is made up of some 65 military, industry, carrier and shippers of all types who handle defense items.

Higgins has served two terms as vice president of the group.

More Space Missions Are Ahead For Atlas

(Continued from Page 1)

R. Dempsey said of the Ranger flight, "This 200th launch is simply the gateway for a continuation of Atlas' role as a launch vehicle important to the nation's space goals.

"We are now working under an Air Force contract on a standardized version which will allow even greater versatility and draw upon experience and proven techniques developed with Atlas over the past six years."

On June 11, 1957, Atlas first lifted from a Cape Kennedy launch pad for 50 seconds of flight. Only six months later (Dec. 17, 1957), Atlas 12-A followed, to be termed fully successful.

Another milestone in its career came on Dec. 18, 1958, when Atlas 10-B hurtled itself into orbit with an Army Signal Corps package (Project Score) which broadcast President Eisenhower's Christmas message from space.

Since then Atlas has sent spacecraft on their way to Venus (Mariner), to the far side of the moon (Ranger IV), and boosted four Project Mercury astronauts into space. During 1962, Atlas launched space capsules piloted by John Glenn (Feb. 20), Scott Carpenter (May 24), and Walter Schirra (Oct. 3). On May 15, 1963, Gordon Cooper's flight brought the Mercury program to a successful close, and Atlas' reliability record stood at four-for-four.

Meanwhile, across the nation, Atlas in its AWS versions, was being readied at 11 Air Force bases with a total of 129 launching sites in what has been called the "greatest defense program ever instituted."

And on Nov. 27, 1963, the nation entered the new era of liquid hydrogen propulsion when Atlas lofted GD/Astro's Centaur high-energy space vehicle on a successful flight.

Only six years after its initial flight success, Atlas scored another first on Dec. 18, 1963. Then, for the first time anywhere, three space vehicles of the same kind were launched in one day, and Atlas was star of the "triple-header."

One Out of Ten Attend College On Own Time

An estimated 1,200 employees —roughly one of every 10 at GD/Fort Worth—are enrolled in college and technical courses this semester.

Nearly 375 employees signed up for a record 29 in-plant TCU courses, reports Hoyt Clark Jr., educational services supervisor. And a like number are probably taking courses on various campuses in the area.

Three of the in-plant courses are held for second-shifters.

A "substantial increase" was also noted in the SMU-TCU graduate engineering program, where 176 enrolled. Under a new plan, employees may take the advanced SMU courses at TCU, through a special arrangement between the two schools.

At Technical Institute, about 350 employees signed up for 11 technical classes, including computer programming, slide rule, and blueprint reading.

In addition to "outside" formalized courses, employees are enrolled in a number of in-plant management development courses. And a number are involved in specialized courses leading to competency in various F-111 areas.

43rd Bomb Wing (B-58) Tapped For Top Honor

Carswell Air Force Base's 43rd Bomb Wing has been nominated as the best bombardment wing in the Second Air Force.

If the group receives the honor, it will be eligible for the U. S. Air Force Flying Safety Plaque for 1963, and the Colombian Trophy.

The 43rd, commanded by Col. E. W. "Brick" Holstrom, flew 14,169 hours of routine combat crew training mission without an accident during the past year.

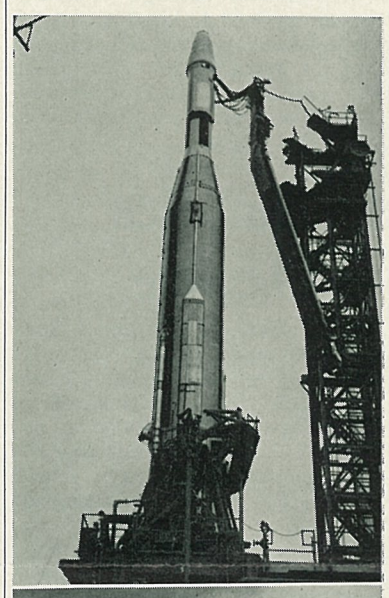
During that time, the 1,400 officers and airmen of the nation's first B-58 wing submitted 291 operational hazard reports. Wing Safety Director Lt. Col. R. E. Erbe said this figure broke all previous records.

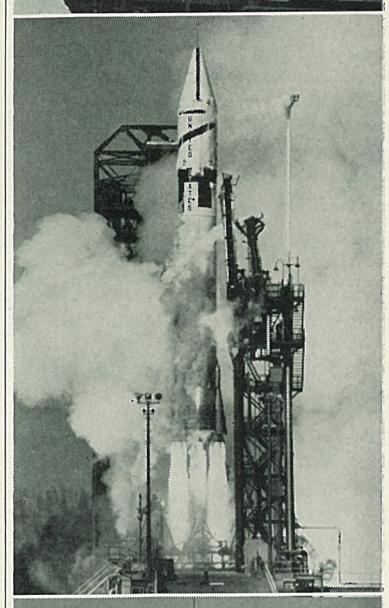
Employment Mgr. Heads Grand Jury

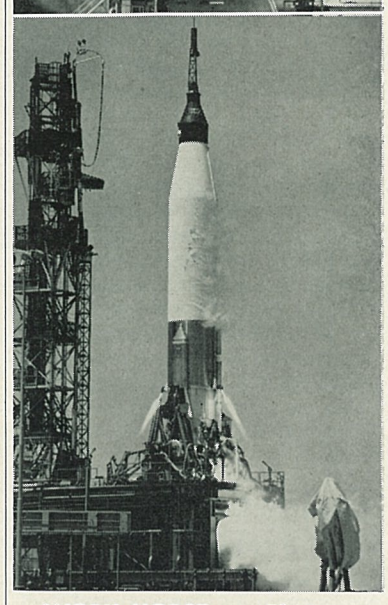
Warren B. Jones Jr., employment manager at GD/Astronautics, has been named foreman of the 1964 San Diego County Grand Jury.

Presiding Superior Court Judge Vincent A. Whelan appointed Jones to the post following recent seating of the grand jury.

A retired Marine Corps major, Jones has been with Astro for the past seven years.







WORK HORSE — Photos review memorable flights of Atlas that recently logged its 200th. At top, Atlas-Agena is shown with Ranger space vehicle aboard; center, Atlas-Centaur lifts from Cape Kennedy in first successful flight of vehicle powered by liquid hydrogen; below, familiar Mercury-Atlas as it started John Glenn on first of four successful Mercury flights.

GD/Astro Cuts Salvage Hours

GD/Astronautics' salvage yard is joining current cost reduction efforts by reducing employee sales hours for surplus materials.

Sales hours will now be observed only one Saturday in each month. Astro's yard was open Feb. 8 and will not be open again until March 7.

This change will have no effect on GD/Convair salvage yard hours for the remainder of this month.

The two yards have observed employee sales hours on alternate Saturdays in the past. Despite curtailment of hours at Astro, both yards will continue to admit all General Dynamics Corporation employees upon presentation of proper identification (badges or "ID" cards).

For those wishing to plan ahead, Astro employee sales hours in 1964 will be observed March 7, April 4, May 2, June 13, July 11, Aug. 8, Sept. 5, Oct. 3, Nov. 14 and Dec. 12.

★ ★ ★

GD/CONVAIR YARD OPEN FEB. 15, 29

GD/Convair salvage yard, adjacent to Gate 5, Plant 1, will be open Saturday mornings, Feb. 15 and 29, from 8 a.m. until noon, for employee sales. No children are allowed on the premises during sales hours.

Four GD Men Will Lecture

Four General Dynamics men are included among lecturers scheduled for the series "Modern Aerospace Design" sponsored by San Diego chapter, National Society of Aerospace Professionals, now meeting Wednesdays, 7 to 9 p.m. in Balboa Park's Aerospace Museum.

They are Romie Taylor, GD/Astro chief of materials and parts engineering, "Design Selection," Feb. 12; Clarence Smith, GD/Convair structures design specialist, "Structural Design," March 4; George Bartolomei, GD/Astro cost reduction and value control staff, "Value Engineering," March 11; and Ed Carlson, GD/Astro engineering staff specialist, "Design Maintenance," April 8.

An enrollment fee of $15 is charged for the 10 lecture series. Information is available from Doug Stephenson, GD/Astro ext. 3769.

C. O. Roberts Dies Suddenly Last Week

Claude O. Roberts, 43, contracts manager of administrative support at GD/Astronautics, succumbed to a heart attack Feb. 4.

Roberts was a long-time General Dynamics employee, joining the company at GD/Convair in 1947 after World War II service as a Naval aviator. He was a Stanford University graduate.

Roberts served as budget supervisor and contract administrator before leaving to accept the post of general sales manager for Langley Corp. He returned to Astro in 1962 as subcontracts administrator and was named contracts manager in January, 1963.

He is survived by his wife, Lois; and daughters, Claudia and Barbara.

Architect to Talk On Layout Trends

William L. Pereira, AIA, an internationally famous architect, will address the San Diego Chapter, American Institute of Plant Engineers, meeting Feb. 19.

Pereira will discuss "Trends in Architecture, Planning, and Industrial Layout."

The affair will be held jointly with the American Institute of Industrial Engineers and the American Institute of Architects.

W. J. Stanley, Astro manager of plant engineering, is president of the engineering group.

Joint Mgt. Club Meeting Set

General Dynamics Management Clubs at Astronautics, Convair, and Electronics will join with other San Diego clubs in a joint meeting the latter part of this month to hear Dr. Kenneth McFarland, a nationally famous speaker.

The special dinner meeting is set for Feb. 25 in El Cortez Hotel's International Room. Social hour starts at 6 p.m., dinner at 7, and program at 8. Tickets now are on sale through usual outlets in the three General Dynamics divisions. Seating capacity is limited to 1,400.

Dr. McFarland is guest lecturer for General Motors Corp., and American Trucking Association. He has been voted "America's Foremost Public Speaker" in a nation-wide poll conducted by the U. S. Chamber of Commerce. He averages 200 talks a year in every part of the country to groups whom he considers "key leaders of the nation."

His subject at the Feb. 25 meeting, sponsored by the San Diego Area Council of NMA, will deal with issues of special concern to management.

Each GD club has been assigned a share of the meeting arrangements by L. G. Lawson of GD/Convair Management Club, general chairman of the program.

GD/Astro's group is in charge of ticket distribution and sales with T. F. McCubbin, chairman. GD/E Management Club is responsible for the drawing and prizes, with Garrett McClung tabbed to conduct the drawing. Rex L. Brouillard is GD/E chairman.

Mgt. Seminars Beginning Soon

Salaried employees at GD/Astro, GD/Convair and GD/E may participate this spring in their choice of four management development seminars to be offered under auspices of GD/Astro Management Club.

Sessions will begin in late February, and will meet weekly from 5 to 7 p.m. Those who register will be notified individually of dates and locations.

Offered are General Principles of Managing (20 hours); Principles of Managing, Technical and Professional (20 hours, and limited to senior engineers and scientists, supervision); Issues in Modern Management (12 hours); and Case Studies, Management Practice and Policy (12 hours).

No charge is made for courses, but textbooks are required in each case. Cost of books is partially refunded on completion of the 20-hour courses; fully refunded on the other two.

Applications are available from Pat Boychock, mail zone 131-80, GD/Astro main plant ext. 3146.

The program is now in its fifth year of operation, with 22 classes conducted simultaneously last fall in General Dynamics plants in the San Diego area.

Additional information is available from George Hunter, Dept. 380-2, Plant 19 ext. 1576.

Sports Club to Hold Championship Rally

Initial plans were announced last week for ARA Sports Car Club's annual championship event, Atlas Rally VI, to be held April 19.

Officials for the event have been named, with Dave Stephens as rally master; Jack Gallant and Dennis Scannell, course layout and scoring; Art Wrightson, check points; Richard John, awards.

ARA Commissioner E. S. "Judge" Penick is handling applications, and Ed Yeaton, publicity.

The club's next meeting will be held at 7:30 p.m., Feb. 18, with a brief business session to be followed by a simple rally, "The Pizza Special." Visitors are welcome.

BEWIGGED — Mrs. J. P. Syren braces herself for transformation as assistant from local coiffeur salon prepares to adorn her with wig during demonstration at GD/Electronics Wives' Club luncheon Jan. 9.

Papers Needed In Symposium

A call is out for papers for presentation at the Ninth Symposium on Ballistic Missile and Space Technology to be held Aug. 12-14 at the U.S. Naval Training Center, San Diego.

The event is sponsored by Space Systems Division and Ballistic Systems Division of Air Force Systems Command.

Papers are welcomed on particular scientific and engineering aspects of ballistic missile and space technology that are pertinent to military applications.

Five copies of an unclassified abstract of not more than 40 words and five copies of the manuscript must be submitted by April 3 to Aerospace Corporation, Attn: 1964 Symposium Chairman, P.O. Box 95085, Los Angeles, Calif. 90045.

Complete details are posted on plant bulletin boards in engineering at Plant 1.

Enrollment Open In Spanish Class

Enrollment is still open for the beginning and intermediate Spanish courses taught by James Hardison, GD/Convair Dept. 15, at Hoover Adult High School.

Although first class sessions of the spring semester were held last week, students may still enter either of the courses by registering at class meetings. Beginning class meets Tuesdays; intermediate, on Thursdays, both in Room 219, 6:30-9:30 p.m.

Discount Is Offered On Colo. River Film

Discount tickets to a Feb. 26 Russ Auditorium showing of a color film on exploring the rapids of the Colorado River are now available through Astro employee services.

Regular $1.50 tickets sell for $1.25.

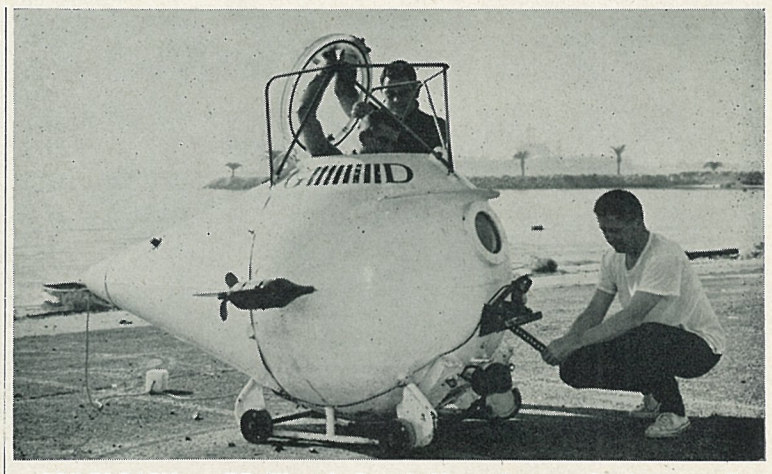
The film was produced and narrated by Frank Wright, veteran explorer and motion picture photographer who has worked with major studios over the years. He is one of the major authorities on the Colorado River.

Astro's Kurtzman Chairs Club Meet

EDWARDS RS — General Dynamics Antelope Valley Management Club here played host to guests from other aerospace industry firms in the area at a Jan. 10 meeting held in Lancaster.

Guest speaker was Ray J. Stanish, lecturer for the National Management Association. Stanish spoke on "Light Is a Very Dark Subject."

Guests from Air Force, Lockheed and North American units in the area were on hand. Astro's Roy Kurtzman was chairman of the sponsoring committee.



BRINY BABY — GD/Electric Boat's Harry Loeser checks grappling attachment on EB's one-man submarine as Dave Downs closes bubble top on operator Al Stover before plunge into San Diego Bay during demonstrations on West Coast.

Electric Boat's One-Man Sub Dives and Surfaces in Pacific

Electric Boat's one-man submarine, the STAR I, is taking dips in warmer waters off California's coast as it goes through its paces before interested audiences during a two-week demonstration tour.

Last week the midget submarine was based at GD/Convair's seaplane ramp facility while operator Al Stover manipulated the tiny vessel in shallow waters offshore. Lining Harbor Island to watch the white bulbous vessel dive, surface, and tread water were spectators from several San Diego installations such as Navy Electronics Laboratory and Scripps Institution of Oceanography.

Harry Loeser, in charge of Electric Boat's deep submergence program, said that other performances are scheduled this week at San Francisco for military and governmental agencies. Loeser, Stover, Dave Downs, engineer, and Bob West, customer relations representative, accompanied the submarine on its West Coast jaunt.

Although STAR I (Submarine Test and Research I) is primarily a test vehicle, many possibilities are seen for such a one or two-man miniature submarine for deep water observation, recovery operations, oceanographic studies.

Main purpose of STAR I is to prove out the control system which allows the fin-like electric motors to swing through a complete circle, giving complete control and maneuverability. It can spin on a dime or reverse the same way, explained Loeser.

Although actual dives have taken it down to only some 30 feet in Long Island Sound, tests under pressure show that it would be completely operable at depths of 300 feet.

It can stay submerged indefinitely, dependent on oxygen supply for the operator. As it is presently equipped, a man could stay under water in the 4-ft. sphere a couple of days.

When STAR I returns to home base at Groton, Conn., it will be completely dismantled, said Loeser, rebuilt and expanded in a follow-on STAR II program. Probably the STAR II will evolve as a two-man vehicle with an electrical control system.

The entire deep submergence program is concerned with development and testing of equipment, such as engines, materials, buoyancy substances, for future deep sea vehicles.

Volleyball League Entries Solicited

Entries now are open for the IRC volleyball league which will start in early March, said Pete Beyrer of CRA.

Rosters must be turned into him before March 5. Each team may list 10 men. CRA is paying $5 entrance fee for Convair and GD/Electronics teams.

GD/E Men Arranging Information Display

GD/Electronics - San Diego men involved in arrangements for the coming National Symposium of the Society for Information Display to be held at San Diego's El Cortez Convention Center Feb. 26-27 include R. E. Turnage, who is convention committee chairman.

James H. Redman is exhibits chairman, and Sherman Boyd and Fred Hamann are co-chairmen of the technical program committee. Clay Murdock is in charge of facilities.

This is the first time that companies in data display fields have had an opportunity to exhibit at a SID symposium.

Among papers to be presented at the two-day technical sessions will be one on "A Versatile Display System" by R. E. Thoman, also of GD/E.

Cafeteria Service In Evening Dropped

Effective this week, the in-plant cafeteria at GD/Convair Plant 1 no longer serves evening meals. It is open now only during the lunch periods, from 11 a.m. until 1 p.m.

Second-shifters may get food service from 7:30 to 9 p.m. at the south canteen, located at the end of Bldg. 7.

FINAL BUY-OFF — R. Daroman, Republic of Indonesia consul from San Francisco office, signs papers accepting third Convair 990A for Garuda Airways which left GD/Convair plant end of January. At acceptance ceremony, from left, were: D. H. Digges, GD/Convair director of contracts; J. Thetekdjoe, Garuda customer representative; Daroman; R. L. Wintringer of GD/Convair contracts, Harun Usman from Indonesian consulate office, San Francisco.

HONORS — Richard A. Wilson, GD/E-Rochester president, left, congratulates division's Peter Ruffino on work in behalf of Rochester Eye Bank and Research Society. Ruffino is responsible for 700 eye-donor pledges and himself is recipient of corneal transplant.

GD/E-Rochester Is Stepping Up Mkt. Approach

Profitable 1963 operations of Electronics-Rochester division of General Dynamics were described last month to members of the division's Management Club by Richard A. Wilson, division president.

He said the turning point came in 1962 and was further secured during 1963.

He made it clear that continued progress required the wholehearted cooperation of everyone to meet the requirements of recent changes in government procurement policies, stiffening competition, and the challenge of new technological developments. Competition for government business, in particular, is becoming sharper and enters the production phase earlier each year, and on almost every contract. Award of a design and development contract no longer assures continued follow-on production.

He outlined an aggressive management program which he is putting into action to meet these problems by instituting a more vigorous marketing approach, outlining more effective technical programs, introducing a program for reducing costs on existing design, and improving operating efficiency.

While it is important for continued growth to seek new products in all areas of the business, Wilson placed emphasis on the need for obtaining new industrial and commercial products. Military electronic business, he noted, presents challenging opportunities, "but we should make special efforts to increase GD/E's share of the growing industrial market." He here displayed a chart showing predicted growth patterns, with industrial business increasing through 1970 at a much faster rate than military, and Wilson emphasized that GD/E should prepare to take full advantage of this trend. He welcomed the contribution of ideas for new products from everyone within the organization.

"We must and will keep abreast of new developments," he concluded, "in this amazing industry. Electronics is a fascinating game; I enjoy it—and enjoy being on a winning team. We have to be smart and tough to win, and I believe we're going to do it."

GD/E-SD Movie Wins Art Director Award

GD/E-San Diego's motion picture film, "The Mark of Man," received an Award of Merit from the San Diego Art Directors Club as one of the best productions of its kind in the San Diego area during the last year.

The 12-minute film traces development of man's written communication to the ultimate of present-day electronic systems — GD/E's S-C 4020 high-speed computer recorder **(General Dynamics NEWS,** Oct. 16, 1963).

'Slow Break' Tie Broken

GD/E Material and Product Service were scheduled to break their tie in last night's game to decide the leader in the CRA "slow break" basketball race.

They went into their Feb. 11 match with no losses. Both had won two games since second round started Jan. 21. Product Service stood 23-20 over the Hi-Lows, and beat 310 Pubs, 30-20.

GD/E Material downed Hi-Lows Jan. 28, 42-16, and won on a GD/E Chargers forfeit the next Tuesday night.

Astro 310 Pubs have won two and lost one and will take a bye this week. They defeated GD/E Chargers, 28-12; and Hi-Lows, 29-22.

Final game of the second round will be played next Tuesday night, Feb. 18, on Balboa Park's Muni Gym courts. In case of a tie, a single game play-off will decide second-half winner.

First and second-round winners will play a two-out-of-three series to determine the plant champion.

Convair Second In Ind. League

Convair's second-place baseball team, which trailed Oceanside in final standings of the Industrial League, were honored at an awards dinner Friday night.

Convair's record for the entire season was 9 wins, 3 losses. Oceanside led the league with 11-1.

Oceanside was undisputed first-half winner and beat Convair, 7-2, in a play-off game for second half on Jan. 26 to take the league championship.

Playing on Convair's ball club were: Glen Miller, Pete Miller, John Hartsell, John Doughty, Ed Moraga, Curt James, Jim Blackwell, Bernie Armas, John Evans, all of Convair; Bill Creamer, Les O'Neal, Norm Dahl, Bill Murphy, Huey Crawford of GD/Electronics. Pete Beyrer of CRA was manager.

Swimming Nights At Beach Resumed

First free swim night of the season for GD/Convair and GD/Electronics families is scheduled for this Saturday (Feb. 15).

Tickets now are on hand at Convair employee services, Bldg. 32, Plant 1, which will permit all holders to swim, without charge, from 7 to 9 p.m. in Mission Beach Plunge.

The free family nights will be held the second Saturday of each month throughout the spring and summer months.

Larry Peterson Back As Aeromodeler Head

Larry Peterson, long-time Convair aeromodeler and former president of the CRA Aeromodelers group, has returned to assume the reins of the club.

He takes over from Harold Ayer, who is no longer with the company.

Peterson urges all GD fans of the sport to turn out on weekends, especially Saturdays, to test their models during flying sessions at Clairemont Mesa flying site, off Hwy. 395.

Lens Fans Will Hold Quarterly Contest

CRA-ARA camera fans will hold their first quarterly contest of the year at the Feb. 16 meeting in Photo Arts Bldg., Balboa Park. Meeting time is 7:30 p.m.

Each member may submit as many as four black and white prints, and four color prints.

RAFFLE TO MARK COIN CLUB MEET

CRA Coin Club members will have a chance to take home a rare commemorative coin if they are lucky at the coming meeting, Feb. 21, 7:30 p.m., in Convair main cafeteria. A 1934 Texas Centennial commemorative half-dollar will be raffled.

CRA Calendar

(Convair Recreation Association has some 40 activities in operation for Convair and Electronics people. For information call CRA headquarters, ext. 1245, Plant 1.)

★ ★ ★

AEROMODELERS — Flying sessions Saturday and Sunday mornings, 8 a.m. to 1 p.m., Clairemont Mesa Flying Site.

BASKETBALL — Final games of league play next Tuesday (Feb. 18), Muni Gym, Balboa Park. Times: 6:50, 7:55 p.m.

BRIDGE CLUB—Master Points Night next Wednesday (Feb. 19), 7:30 p.m., Convair executive dining room.

CAMERA CLUB — CRA-ARA quarterly contest Feb. 16, Photo Arts Bldg., Balboa Park, 7:30 p.m.

COIN CLUB — Meeting Feb. 21, 7:30 p.m., Convair main cafeteria.

FENCING — Workouts and instruction each Friday, 7-10, YWCA, 10th & C Sts.

FISHING CLUB — Meeting Feb. 18, Gillespie Field Clubhouse. Potluck dinner, 6:30; business session, 7:30 p.m.

GLIDER CLUB — Meetings every second Saturday, 8 p.m., Golden Hills Playground Recreation Hall, 28th & A Sts. For information call Commissioner Don Larsen, ext. 2470, Plant 1.

ICE SKATING — Thursday ice skating sessions, Mission Valley Ice Plaza, 6:30-8 p.m.

MOVIES — Reduced prices for General Dynamics people at State Theater, Euclid and El Cajon Blvd. General admission: adults, 75¢; children, 25¢.

PISTOL CLUB—Regular shoot Feb. 23, 9:15 a.m., San Diego Police Pistol Range, Federal Blvd. and Home Ave.

RADIO CLUB — Next meeting Thursday (Feb. 20), 8 p.m., Harbor Drive club headquarters.

RIDING CLUB — Convair club to join in trail ride Feb. 23 hosted by Pepper Tree Stables, N. Magnolia Ave., Santee. Call Commissioner Tommy Thomason, ext. 1047, Plant 1.

ROAD RUNNERS — Meeting Feb. 20, 7:30 p.m., Gillesipe Field Clubhouse.

ROCKHOUNDS — Meeting tomorrow (Feb. 13), 7:30 p.m., Gillespie Field Clubhouse. Lapidary workshop open Wednesday evenings, 7-9 p.m.

ROLLER SKATING — Tickets at Convair employee services for General Dynamics free skate night Feb. 17 at Skateland, Front and G Sts.

SOLO FLYERS — Registration open for new ground school course to start in March. Call Commissioner Don Larsen, ext. 2470, Plant 1.

SQUARE DANCING — Everyone interested in instruction class, call CRA headquarters, ext. 1245, Plant 1.

SWIM NIGHT — Tickets at Convair employee services for free family swim night Feb. 15, 7-9 p.m., Mission Beach Plunge.

VOLLEYBALL — Entries open for IRC league. Phone team rosters to Pete Beyrer, ext. 1245, Plant 1.

WATER SKI CLUB — Skiing weekends on Mission Bay on phone-call basis. Call Commissioner Gene Sevigny, ext. 2701, Plant 1.

Williamson Holds To Pistol Club Lead

Commissioner Joe Williamson is still out in front in CRA Pistol Club competition, again winning both events in Jan. 26 matches.

His 12 bull's-eyes broke a 291 tie with Vern Mardis, who stood just an "X" behind in .22 Police Course master class. Ralph Picard of GD/E topped the expert class with 275.

Standings in the .22 Short National were: Williamson, 285; Jim Halfacre, 283; Mardis, 280; and Picard, 253.

Sports & Recreation

STANDOFF — Chargers and Alley Cats of GD/E bowling league ended first half of season in 37-37 tie. Keglers, from left, are Ginnie Woelber, Bob Apgar, Cecile Proctor, Don Illeman of Chargers team; Alley Cats' Bill Briles, Elva Richie, Phil Mathewson, Denise Briles, and (kneeling) Ed Richie, captain. Chargers' captain Dave Proctor not shown. Note new shirts, which bear atom and electron symbol on back.

Chargers and Alley Cats Tied As GD/E Keglers End First Half

Chargers and Alley Cats ended first half of GD/E bowling league play tied with 37 games won, 23 lost.

They will keep the 8-team league tangled until they meet each other again in regular play. A couple of games behind were the Wholy Rollers with a 35-25 standing.

Only other league in CRA-sponsored bowling play to decide first-half winner was the Mixed Handicap Foursome rolling Wednesday nights at Pacific Recreation. Christie's team, captained by Portis Christianson, was way out ahead of the pack when the scores were tallied before the end of the year.

The three remaining leagues do not split the season as they have too many teams to schedule throughout the entire period. They are the Tuesday Mixed Handicap league at University Lanes; Mixed Handicap league, Scouts, bowling Thursdays at Frontier Lanes; and the 510 Men's Trio Friday night at Pacific Rec.

CRA Commissioners Jim Hayman and Mike Brooks are in the process of setting up schedules for the annual Plant Championships which will probably be held some time in April.

Horsemen to Join In Feb. 23 Trail Ride

Convair and GD/E horsemen have been invited to join in an all-day trail ride on Sunday (Feb. 23), sponsored by Pepper Tree Stables, Santee.

Riders will meet at the stables, North Magnolia Ave., at 9 a.m. They will hit the trail at 10, stop after two hours for a chuck wagon lunch, and be back at 2 p.m.

CRA Commissioner Tommy Thomason is taking reservations and giving information at ext. 1047, Plant 1.

Anyone wishing to reserve a horse for the ride may call Thomason or Peggy Kleveno, stables manager, phone 448-4257.

Eleven Ready For Air Exam

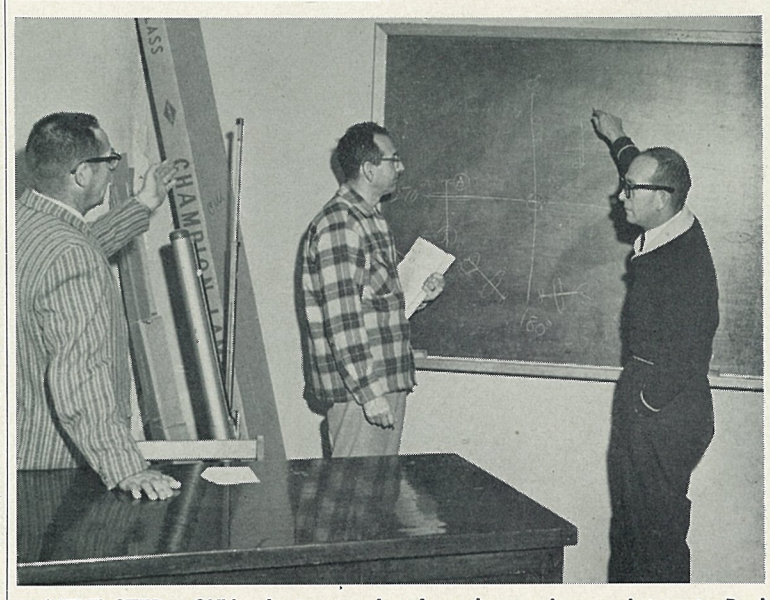
Eleven GD people, one woman and ten men, were well on their way to qualify as pilots as they completed the CRA Solo Flyers ground school last month.

Instructor Ian Lansdown called them together for two extra review nights to be sure that each one would be well prepared for the FAA examination for private pilot's license.

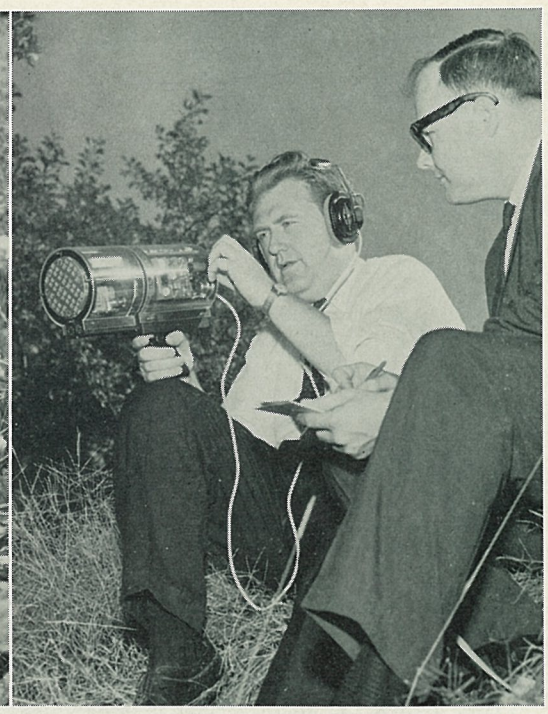
The CRA-sponsored group will schedule another ground school course around the first of March, said CRA Commissioner Don Larsen.

Since the absolute limit of the class will be 15 persons, all GD/Convair and GD/E persons wishing to take the course should sign up immediately. Larsen will take registration at ext. 2470, Plant 1.

Charge for the course is $25 each to help defray cost of instructor.



NEXT STEP—SKY—Instructor Ian Lansdown gives pointers to Bud Swerdloff and Dale Lance working out navigation problem at blackboard in final class of CRA Solo Flyers ground school.



ON THE LOOK-OUT—At right R. W. Jackman, project engineer for new GD/Electronics-San Diego Hand-Held Radar, demonstrates device for E. F. Demers, project technician. In photo at left military observer tries it out in combat condition. Radar warns operator of moving targets via audio signals through earphones.

New Hand-Held Radar Introduced by GD/E-SD

A new radar—small enough to be held in the hand or attached to a belt—developed by General Dynamics/Electronics at San Diego was displayed for the first time at last week's (Feb. 5-7) National Winter Convention on Military Electronics in Los Angeles, Calif.

Capable of detecting and tracking a variety of moving objects, a completely self-powered prototype model of the new unit weighs only eight pounds and measures 12 in. long by 5 in. in diameter. By repackaging and using miniaturization techniques, GD/E engineers feel that the size could be halved and the weight reduced to less than five pounds.

Applications for the unique radar include front-line military detection and surveillance despite low visibility or wooded or jungle areas. Also, the radar can be used for communication with aircraft or vehicles as well as such commercial uses as border patrol, police detection, industrial security and hunting.

It works this way: the operator scans a potential target area by aiming the hand-held radar antenna in the general direction. When the radar detects a moving target, he hears a characteristic sound through either a pair of earphones or a tiny loudspeaker on the rear of the unit. For example, a walking man makes a heavy thumping target signal. The trained operator will recognize the sound as a man walking, a moving vehicle or an animal. As he scans with the radar, by moving it from left to right, he may peak the signal (where the target sound is loudest) which enables him to locate the moving object even though it may not be visible.

Simple instruction and a few hours practice allow the operator to identify the varying sounds as people, vehicles, animals, etc. Not only can he detect their presence, but also the approximate distance away and the direction. Range of the unit is 1,000 meters or two-thirds of a mile.

With current emphasis on highly mobile tactical military forces, GD/E engineers feel that lightweight hand-carried surveillance and local security radar sensors have a vital role in future military operations.

GD/E personnel involved in the development of the new-type radar include W. F. Briles, manager-electronic system predesign; R. W. Jackman and E. F. Demers of electronic system predesign.

Pres. Johnson Praises Redeye

Redeye, GD/Pomona-developed guided missile system, was praised by President Lyndon B. Johnson at a press conference in Washington on Feb. 1.

In discussing defense developments, the President stated: ". . . we are now completing development of new and highly advanced weapons systems . . . I think you would like to hear something about this, because you can take great pride in it.

"The first of these is Redeye. For the first time our ground combat soldiers will be able to fight back against a high performance enemy aircraft. The Redeye, which they can fire from the shoulder like a rifle, sends a heat-seeking missile in pursuit of the enemy airplane, with a very high probability of scoring. Once hit, the airplane will go down.

"Redeye has been developed by Pomona Division of General Dynamics at Pomona, Calif."

Value Study Results In Record $2 Million Saving on F-106 Kits

A GD/Convair customer, the U. S. Air Force, is over $2-million to the good as a result of the GD division's value engineering program.

An analysis by Convair engineering of the F-106 Rapid Tune Magnetron Power Supply, conducted last year, showed that at least that much could be pared from estimated costs if the AF would approve relocation of the package. Initial estimate for design and delivery of 313 hydraulic power package kits was $5,452,611.

Challenging requirements of the project, GD/Convair value control teams came up with simplified design, substitution of off-the-shelf items, and elimination of expensive components to completely change the concept, and cost.

As a result of the analysis, GD/Convair received a contract for 235 kits last fall at a figure nearly $1½-million lower than the original estimated cost. The balance of total savings of $2,149,638 will be realized by the AF on follow-on orders in the next fiscal year.

This is probably the largest savings ever turned back to a customer through intensive value engineering, said H. P. Williams, GD/Convair manager of value control.

LEADERS—Photographed at Quality Control/Reliability panel meeting in San Diego last month are, from left, E. S. Winlund, GD/Astronautics, newly elected chairman of reliability technical panel, W. J. Martin, GD/Convair, chairman of quality control panel, T. W. Dunn, Electric Boat, J. Y. McClure, Corporate Office.

Ten GD Divisions Represented As Astro Hosts QC/Reliability

General Dynamics' Quality Control/Reliability Panel convened in San Diego Jan. 27-29, with GD/Astronautics as host division.

On the opening day of meetings at the Sands Hotel, J. Y. McClure, Corporate director of reliability, made opening comments, and representatives of ten General Dynamics divisions were welcomed by GD/Astro President J. R. Dempsey.

Following general discussions early on the agenda, delegates split into two groups. Attending were:

General Dynamics Corporation—J. Y. McClure.

Canadair Limited—H. L. McKeown, G. Sidaway.

GD/Pomona—A. C. McMaster, J. W. Dunifon, K. E. Hassler, J. C. Bear, J. M. Teresi, H. Bullington, T. F. Fore.

GD/Fort Worth—E. R. Weiher, A. Boyd, N. H. Simpson.

General Atomic—C. J. Brous, G. W. Chandler, L. Seyler.

Electric Boat—T. W. Dunn, O. R. Goode, H. T. Hilman.

GD/Electronics—Rochester — J. Snodgrass, J. J. Holland.

Stromberg-Carlson—H. Pitlik, C. W. Holden, W. P. Karas.

GD/Electronics - San Diego — R. F. Voell, H. J. Stuart, K. Sinclair, C. E. Klein, I. L. Kemper, A. S. Freedman, W. D. Garrett, J. Eichberger, J. W. Barrett.

GD/Convair—W. J. Martin, R. V. Shields, G. A. Covington, C. Heinrichs.

GD/Astronautics—C. L. Amaral, D. R. Archibald, J. F. Baebler, P. M. Benner, S. E. Blumberg, J. M. Bowers, J. R. Dempsey, G. C. Eggen, L. S. Franklin, L. I. Fredrickson, R. H. Gilliland, P. I. Harr, D. L. Hill, W. R. Jackson, W. G. Lux, W. E. Magnuson, W. J. Maloney, L. I. Medlock, L. A. Milton, P. A. Nagy, D. R. Nash.

K. E. Newton, R. L. Parkhill, Sam Petcher, J. H. Rusk, J. E. Sanders, M. M. Saunders, W. C. Seaforth, J. H. Sharmahd, H. O. Story, F. Virgadamo, H. O. Wendt, E. S. Winlund, A. J. Woodington. Jean Phillips, hostess.

Contracts Let To Continue Missile Tasks

General Dynamics/Pomona last month was awarded contracts totaling $3,705,000 for work on two missile programs.

The U. S. Navy announced award of a $2-million contract for continued production of Terrier and Tartar guided missiles.

Award of $1,705,000 in two separate contracts for continued research and development on the Redeye surface-to-air guided missile system was announced during January by the U. S. Army.

Terrier and Tartar supersonic missiles developed and produced at GD/Pomona now arm a total of 47 Navy ships.

Tartar is operational aboard 19 guided missile destroyers and two cruisers. Included among the 26 ships armed by Terrier are two carriers, the USS Constellation and USS Kitty Hawk, and two nuclear warships, the USS Bainbridge and USS Long Beach.

The shoulder-fired Redeye will give infantrymen the capability of destroying low-strafing and bombing aircraft. Redeye is a composite structure containing propellant, an infrared guidance system and high-explosive warhead. It weighs about 28 pounds.

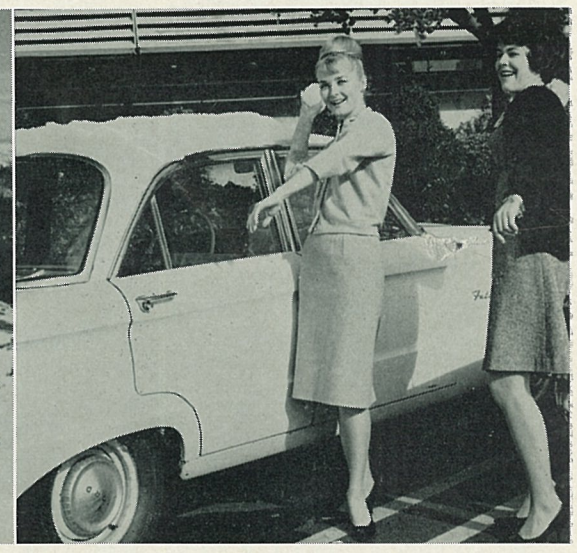
Pomona Processes Its Millionth PTR

Quality control's data collection group hit a milestone last month when the one millionth Production Test Record (PTR) was processed.

PTRs have been used at GD/Pomona for many years in all functional production testing. However, about six years ago, the data collection group started numbering each PTR.

"About 4,000 PTRs are issued each week," E. F. Drake, data collection supervisor, said.

The data collection group assembles and issues the blank sheets and test data is recorded by production test groups. Data is then collected, coded and tabulated for use in preparation of quality control reports which provide a basis for problem identification and corrective action.



SNOWY POMONA — At far right Ann Woolsey and Luanne Dooley make snowballs from snow on R. W. Young's car in Pomona, Calif. Snow fell night before at Mt. Baldy where he lives and came to work with him! In center photo GD/Pomona skiers are at Mammoth. From left: Kathy Brewer, Dave Mikesell, Roger Paine, Chuck Rue, Dave Williams, Bill Donahue, Bob Krueger, Kay Winburn, Cal Kallerend. At left Rockhounds gather around campfire near Ogilby. On trip were: Tom, Bob and Betty Hunt, Jim and Bob Gottier, Joyce Hunt, Emma and Louis Keller, Millie Gottier, Rachel and Jack Bittner.

GD

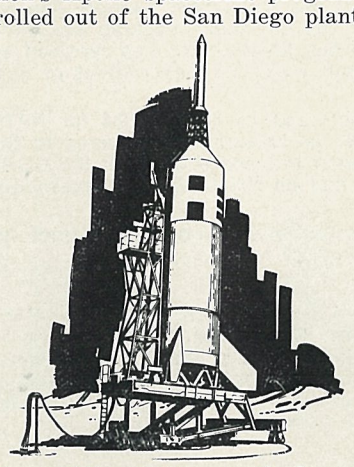
SAN DIEGO EDITION
(Serving GD/CONVAIR
and GD/ELECTRONICS)

GENERAL DYNAMICS NEWS

Vol. 17, No. 5 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, February 26, 1964

Another Little Joe Off to White Sands

Second Little Joe II launch vehicle built by General Dynamics/Convair for National Aeronautics and Space Administration's Apollo spacecraft program rolled out of the San Diego plant



the middle of this month, bound for White Sands Missile Range, N. M.

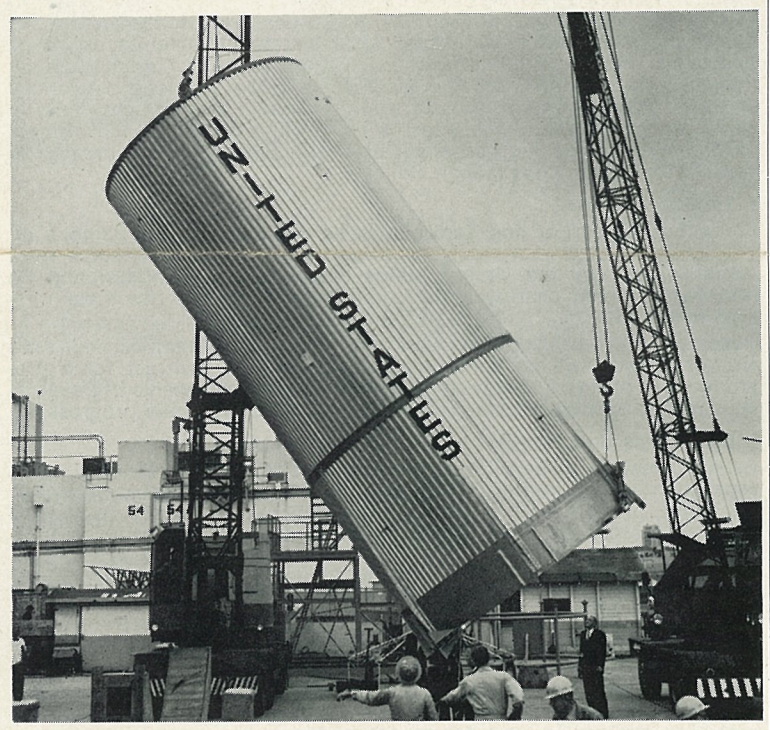
The vehicle is now undergoing checkouts and installation of systems at the desert test ground in preparation for its mission—launch of a North American Aviation boilerplate (engineering model) Apollo spacecraft with a life launch escape system.

Little Joe II must boost this payload to an approximate altitude of 20,000 feet. At this point the thrust of the vehicle's solid-fuel Algol motor, built by Aerojet-General Corp., will be terminated by activating two linear-shaped charges attached to the motor casing.

Upon termination of the vehicle's thrust, the spacecraft's launch escape motors pull it away from the vehicle, the escape tower is jettisoned, and the spacecraft is parachuted to earth.

The coming flight is one of a series to develop and qualify the escape system before manned Apollo flights.

GD/Convair is producing six Little Joe IIs under a $10 million contract managed by NASA's Manned Spacecraft Center, Houston, Texas. The first Little Joe II made a successful qualification test flight at White Sands last August.



ALL SET — GD/Convair's second Little Joe II, America's most powerful solid-fuel booster, is loaded on extendable trailer at San Diego plant for dawn departure Feb. 12 en route to White Sands Missile Range, N.M., where it will be used for first full-scale test flight of Apollo spacecraft launch escape system.

GD/Electronics Demonstrates Special Tube For First Time

General Dynamics/Electronics-San Diego is demonstrating its cathode ray tube of generating a million alphanumeric characters per second for the first time at the Third National Symposium of the Society for Information Display today and tomorrow (Feb. 26-27) at San Diego.

The GD/E display in El Cortez Hotel, location of the symposium, consists of a special CHARACTRON[R] shaped beam tube operating at the one megacycle rate—probably the fastest rate of character generation yet achieved, according to A. H. Wisdom, manager of research and engineering at GD/E's data products plant.

Wisdom said that the demonstration will show the capabilities of the CHARACTRON tube as a result of research in the areas of high speed character generation, but emphasized that speed is only one small part of the effectiveness of a cathode ray tube display system.

The CHARACTRON principle provides the easiest and fastest known means of character generation. Since the characters are formed by extruding the electron beam through a stencil-like matrix within the tube, each character is formed in a single operation.

CON-TRIB OKAYS $3,000 DONATIONS

Contributions of $3,000 were approved for three San Diego charitable organizations by the GD/Convair Employees' Con-Trib-Club Committee this month.

At the Feb. 11 session the committee voted $2,000 to the San Diego County Heart Association. Last Tuesday members gave final approval to a contribution of $500 for the YMCA and an equal amount for the Pathfinders, Inc.

Newly-chosen treasurer of the committee is Richard Fitzgerald of Dept. 401-5, IAM representative, instead of H. C. French, as reported in error in the Feb. 12 issue.

GD 1963 Finances in Brief

	1963	1962
Net Sales	$1,415,073,684	$1,898,481,708
Profit Before Income Taxes	64,205,609	58,483,460
Income Taxes	14,498,550	5,624,815
Net Income	49,707,059	52,858,645
Working Capital	188,450,627	128,144,701
Property, Plant and Equipment—Net	190,102,676	170,789,338
Long-Term Debt	125,716,172	148,525,032
Share Owners' Equity	256,594,152	170,539,023
Backlog of Orders	1,159,000,000	975,000,000
Common Shares Outstanding	9,997,992	9,997,290

ROGER LEWIS reports increase in backlog . . .

COWELL JOINS GOLDEN'S STAFF

James M. Cowell Jr., formerly works manager for Curtiss-Wright Electronics division, has joined the staff of Max Golden, General Dynamics vice president.

J. M. Cowell

Cowell, educated at Rutgers, was production control manager at Bendix Aviation's Philadelphia division until joining the Air Force in 1943 for two years of service in the European theater. Following war service he was in charge of planning and production control for Sonotone Corp. and joined Curtiss-Wright's Aeronautical division in 1949 as production control manager, and later director of purchases. He was acting general manager of Curtiss-Wright's Metals Processing division before taking over the electronics post.

Reserve Officers Tour Convair Plant

Naval Reserve Officers were introduced to GD/Convair facilities and programs on a one-day visit the early part of this month (Feb. 6).

W. D. Wood, Convair requirement engineer, conducted the 28 visitors, all on active duty with Fleet Readiness Representative Office, Pacific, through the C-141 and Little Joe II production areas. He also gave a one-hour presentation on the division's current programs.

Garuda Rep at SD Closes up Office

Garuda Indonesian Airways resident representative's office at Convair was closed last week following delivery of Garuda's third and last 990A last month.

J. Thetekdjoe, Garuda's representative during production and preparation of the Convair jet transports, has returned to Djakarta, Indonesia, to resume his duties as manager of engineering for the airline.

Pre-Tax Earnings Rise, Roger Lewis Reports

(Following is the complete text of President Roger Lewis' report to share owners as carried in General Dynamics Corporation's 1963 annual financial report this month.)

General Dynamics Corporation continued to make important progress in 1963.

This progress is reflected by increases in both earnings before taxes and profit ratios in spite of a reduction in sales. Net income for 1963 would have shown a significant increase over that for 1962 if income taxes had been payable on the total earnings of the Corporation for each of the past two years.

Performance achievements in completing the commercial jet transport program have resulted in a substantial special credit which has been added to earned surplus.

At the end of 1963, the Corporation had no short-term bank loans outstanding, and working capital was up sharply. During the year we also prepaid a sizable installment on our long-term debt.

• Earnings

Consolidated net income of General Dynamics Corporation and subsidiaries for the year ended December 31, 1963, was $49,707,059, equivalent to $4.97 per common share outstanding. In the preceding year, consolidated net income was $52,858,645, or $5.29 per common share.

Earnings for the two years, however, are not directly comparable. Due to the carry forward of losses from 1961, no provision for United States income taxes was required on the income of General Dynamics Corporation for 1962. During 1963, the combination of operating income and the special credit used up the remaining loss carry forward, and provision for United States income taxes has been made on a portion of 1963 operating profits. In both years, provision was made for taxes on earnings of subsidiaries.

Pre-tax profit for 1963 amounted to $64,205,609, compared with a pre-tax profit of $58,483,460 in 1962. If the Corporation had been required to provide for United States income taxes on all its earnings in both years, net income for 1963 would have been $32,790,059, or $3.28 per common share, an increase of 13% over net income of $29,008,645, or $2.90 per common share, for 1962.

• Special Credit Jet Transport Program

The special credit of $33,000,000 is the result of a lower final cost to complete the commercial jet transport program than had been provided for previously.

The 1961 write-off on the Convair 880/990 passenger transport program took into consideration these factors: costs incurred and to be incurred both on completed aircraft and on those still under construction; the anticipated costs of modifying and testing delivered and undelivered aircraft; the customers' right in certain cases to return or refuse aircraft in the event performance guarantees could not be met; and probable losses on aircraft for which we did not have firm orders. Performance guarantees have been fully met and anticipated costs to manufacture the aircraft have been cut sharply. In addition, modifications to the aircraft resulted in improvements in performance and speed which earned bonus payments for the Corporation and helped sell additional planes. The commercial jet transport program is now considered complete.

• Sales and Backlog

Consolidated net sales of General Dynamics Corporation and subsidiaries in 1963 were $1,415,073,684, compared with sales of $1,898,481,708 in 1962.

Completion in 1962 of the Atlas base activation program by the Astronautics division was the primary reason for the reduction in sales. Volume was also somewhat lower in 1963 at the Fort Worth division and at Canadair Limited.

Sales of General Dynamics fall into five general categories. Their approximate proportions during 1963 were as follows:

Aircraft	23%
Missiles and space	36%
Submarines	17%
Electronics	10%
Industrial	14%

Deliveries to various services and agencies of the Government accounted for approximately 75% of sales; the balance went to commercial and industrial customers.

Backlog of funded orders at December 31, 1963, was $1,159,000,000, compared with $975,000,000 a year earlier. This does not include orders expected to be funded or negotiated as part of authorized Government programs.

• Debt

In February 1962, General Dynamics' short-term bank loans were at a peak of $187,000,000. At the end of 1962, this had been reduced to $90,000,000, and by mid-1963, the Corporation had no short-term loans outstanding. While the company has borrowed, and will continue to borrow, short-term funds for general purposes, it had no such loans outstanding at year-end.

During 1963, long-term debt was also reduced by regular installment payments and by the prepayment of an additional $17,500,000.

As a result of 1960 and 1961 losses, dividend payments were restricted by provisions in long-term loan agreements made prior to that period. Recent amendments to those agreements permit the Corporation to pay dividends on common stock out of net income earned subsequent to December 31, 1963. However, no prediction can be

(Continued on Page 2)

CON-TRIB MENTORS — Members of committee which directs GD/Convair Employees' Con-Trib-Club donations are, from left, (seated): H. C. French, IAM representative; Molly Dowell, secretary pro tem.; J. K. Field, manager of personnel services, committee chairman; Ralph Montgomery, Management Club; Richard Fitzgerald, IAM, newly-elected treasurer. Standing, from left, are: D. D. Strange and W. A. Ebel, both EAA reps; F. H. McLaughlin, company rep; E. E. Larsen, IBEW. Jack Benedict, representing management, not present.

NMA Zone A Meeting Held at San Diego

Presidents and other officers of GD/Convair and GD/Electronics-San Diego Management Clubs were among the over 100 delegates from Zone A attending the National Management Association executive officers' conference Feb. 6-9.

Ralph Montgomery, president, and R. T. McMurry, treasurer, represented the GD/Convair club.

D. A. Graybill, president of the GD/E group, represented that club, while several of his officers attended various sessions during the four-day meet at Vacation Village on Mission Bay.

Main speakers included the NMA president, Francis Docken, and Marion Kershner, NMA executive vice president, from the association's Dayton, Ohio, headquarters.

Family Swim Night 'Splashing Success'

First family swim night of the season was a "splashing" success, said Pete Beyrer of CRA. Altogether 360 swimmers turned out for the Feb. 15 session in Mission Beach Plunge. Of these, 97 were Convair and GD/E families. Next free swim will be March 21. The family nights will continue on the third Saturday evening of each month throughout the summer and into fall.

Log Book Entries

Papers Presented

ELECTRONICS - SAN DIEGO

THOMAN—R. E. "A Versatile Display System," Society for Information Display, El Cortez Convention Center, San Diego, Calif., Feb. 27.

Service Emblems

CONVAIR

Service emblems due during the period Feb. 16 through Feb. 29.

Twenty-year: Dept. 6-53, J. A. Howland Jr.

Fifteen-year: Dept. 6, R. E. Baker, R. H. Detwiler; Dept. 42-0, P. R. Carlton Jr.; Dept. 44-5, Catherine W. Hinton; Dept. 115, L. R. Hance.

Ten-year: Dept. 6-22, J. D. Chapman; Dept. 14-4, Belvin Coffman; Dept. 28, W. S. Dold.

ELECTRONICS

Twenty-five-year: Dept. 74-20, R. W. Allen.

Twenty-year: Dept. 72-00, Oveta T. King.

Ten-year: Dept. 70-00, A. E. Degler.

Awards

CONVAIR

Employee Suggestion awards approved for periods ending Feb. 7 and Feb. 14.
Dept. 27-6, O. T. Brown, $10.
Dept. 42, R. H. Feeley, $10.

Cost Improvement Proposals approved for the same periods.

Dept. 15, D. W. Chase.
Dept. 34-2, Bertha J. Wilson.

Retirements

CONVAIR

COLE—George, Dept. 6. Seniority date Oct. 3, 1955, retirement effective Jan. 8.

FLORY—Joe, Dept. 313-8. Seniority date Feb. 28, 1955, retirement effective Jan. 20.

HIRST—George C., Dept. 171. Seniority date Sept. 30, 1947, retirement effective Dec. 30, 1963.

KENT—John L., Dept. 400-5. Seniority date Jan. 15, 1952, retirement effective Jan. 19.

NELSON—Julius R., Dept. 3-1. Seniority date Nov. 28, 1951, retirement effective Jan. 28.

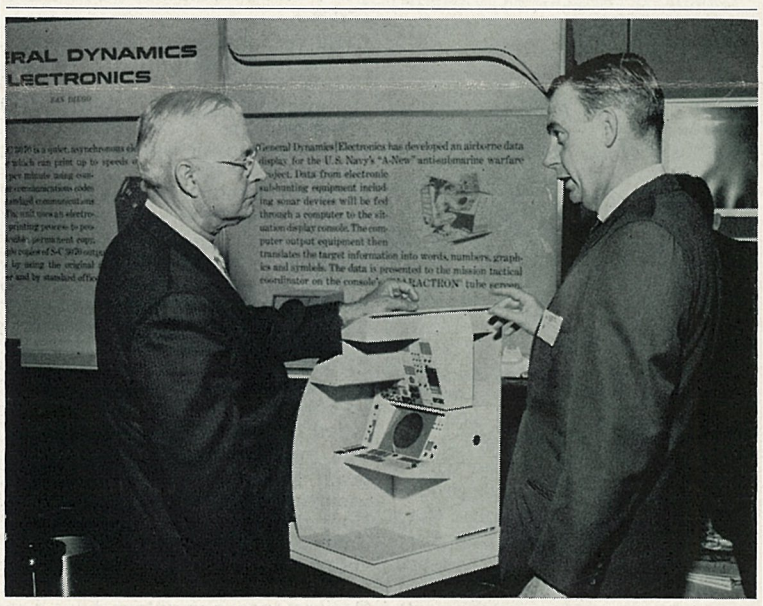
SEARS—Leroy, Dept. 400-5. Seniority date March 5, 1952, retirement effective Jan. 31.

STOWELL—Henriette B., Dept. 16-1. Seniority date Jan. 25, 1956, retirement effective Jan. 5.

WARD—Ralph A., Dept. 136. Seniority date Jan. 12, 1948, retirement effective Feb. 3.

WELLS—Frederick M., Dept. 215. Seniority date May 1, 1958, retirement effective Dec. 30, 1963.

BUSINESS TALK — Howard L. Richardson, left, General Dynamics vice president marketing, consults with John L. Lombardo, head of GD/Electronics-SD, on GD/E's business prospects during recent West Coast visit.



ON DISPLAY—J. W. Colvin, GD/Electronics-SD manager of plans and programs, (right), one of large contingent of GD/E people attending Feb. 5-7 Military Electronics convention in Los Angeles, shows Charles Hatcher of Navy Electronics Laboratory model of A-NEW console.

ROCKHOUNDS HUNT FOR FIRE AGATES

CRA Rockhounds trekked to the desert last weekend (Feb. 22-23) in a search for fire agates. Their destination was Coon Hollow, near Wiley Well. Next month's outing will coincide with the annual Boron rock show, said Commissioner Dan Whorton. Plans will be made at the March 12 meeting.

SAWYER NAMED TO LEGAL POST

Colonel C. Sawyer, formerly a member of the Corporate legal office, has been named assistant chief counsel at GD/Fort Worth by President Frank W. Davis.

He will report to M. L. Hicks, vice president-legal and procurement.

Sawyer joined General Dynamics in 1944 as special assistant to vice president-legal for Convair division, and two years ago was made head of the corporate legal office at San Diego, since disbanded.

During his early years with the company, Sawyer was associated with the Pruitt, Hale and Coursen law firm of New York.

Over the years, he worked in all areas of government contracts and served on a number of top-level industry committees.

★ ★ ★

GLASER TRANSFERS

Al Glaser, associate counsel at GD/Fort Worth, will be transferred to Electric Boat division at Groton, Conn. effective Feb. 27, as assistant division counsel.

General Dynamics NEWS

Published by General Dynamics Corporation, One Rockefeller Plaza, New York 20, N. Y.; with editorial headquarters at 3302 Pacific Highway, San Diego 12, Calif., P.O. Box 1950, telephone 296-6611, ext. 1071. Logan Jenkins, editor-in-chief.

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* * *

Affiliated editions of General Dynamics NEWS are published in Rochester, N. Y., covering GD/Electronics and Stromberg-Carlson, editorial offices, 100 Carlson Road, HUbbard 2-2200, ext. 2555. Fred E. Voss, editor; and at Groton, Conn., covering GD/Electric Boat, editorial offices at Groton, HIlltop 5-4321, ext. 300 and 513, Joseph Tracey, editor.

Pre-Tax Earnings Rise, Roger Lewis Reports

(Continued from Page 1)

made at this time on dividend action which may be taken by the Board of Directors in the future.

• New Investment

At the end of 1963, General Dynamics purchased the physical assets of the Quincy, Massachusetts, shipyard of the Bethlehem Steel Company. This shipyard, which will be under the jurisdiction of the Electric Boat division, supplements our existing shipbuilding capabilities at Groton, Connecticut.

We have purchased 2200 acres of land near the Astronautics division plant in San Diego. This land will be used as a test site to study application of newer and more powerful fuels for space vehicles.

During the year, we increased our investment in The United Electric Coal Companies, bringing General Dynamics' ownership of United Electric to approximately 53% of the stock of that company.

The Corporation also acquired the Darlington Brick Company, a producer of brick and tile products in the Pittsburgh, Pennsylvania, area.

• Key Programs: Aircraft

Initial design and development of the F-111 bi-service tactical fighter is well under way and on schedule at the Fort Worth division. The development engineering inspection of the full scale mock-up was completed in September. The United States Government has received an order for 24 production F-111 aircraft from the Government of Australia.

At Canadair Limited, production continued on the CF-104 for NATO air forces. The first production CL-41 jet trainer was delivered to the Royal Canadian Air Force. Development proceeded on both the CL-84 vertical takeoff and landing aircraft and on the CL-89 reconnaissance drone for battlefield use.

The Convair division received a substantial follow-on subcontract for tail sections for the C-141 military cargo jet.

• Nuclear Submarines

The Electric Boat division established a new record in 1963 with the launching of five nuclear submarines. During the year, the division was awarded contracts for construction of four submarines, as well as contracts for design of improved classes of missile and atttack submarines. Current backlog of submarines under construction or on order includes ten Polaris and seven attack types.

• Space

Highlights for the year included the Atlas launch of astronaut Gordon Cooper on his 22-orbit flight. The Centaur space vehicle, the first United States vehicle to use liquid hydrogen as a fuel, was successfully orbited in November. Both Atlas and Centaur are built by the Astronautics division.

The Little Joe II launch vehicle, built by the Convair division, was successful in its first firing. Six Little Joe II's are currently on order for use in the test phase of the Apollo program.

During the year, we received new space contracts for: standardized launch vehicle versions of Atlas; SATAR research satellite prototype and flight vehicles; a modernization program on Atlas F missiles; additional Glotrac stations for the Air Force's global tracking network; a study of a four-man life support system capable of sustaining men in space for periods up to a year; a research program on Flox (liquid oxygen—liquid fluorine) as a possible additive to provide greatly increased thrust for Atlas launch vehicles.

• Tactical Missiles

Production of Terrier and Tartar missiles continued at the Pomona division. During the year, four Tartar and six Terrier-armed ships were commissioned by the United States Navy. France commissioned its first Tartar-armed destroyer. Six countries now plan to use these missiles in their fleets.

Research and development work on the Redeye man-carried antiaircraft missile will be continued during 1964. A contract for a preproduction planning study for Redeye has been received. Development of the Mauler mobile surface-to-air missile system is progressing.

• Electronics and Telephone

At the Electronics/San Diego division, which was established as a separate division during 1963, sales of computer display consoles, electronic printers and computer microfilm recorders are developing at a satisfactory rate. The division received a contract to produce computer display equipment to be used in the Gemini and Apollo programs by the new NASA Space Flight Center in Houston. Test flights in jet aircraft of the division's Terrain Following Radar system were successful.

Telephone exchanges made by the Stromberg-Carlson division were ordered for Anchorage, Alaska, and Iraq, the latter as mobile van-mounted systems. The division has received a contract from the United States Army to develop and install an electronic telephone switching system for use by defense commands.

The Electronics/Rochester division received major production contracts for radio communications equipment from all branches of the military services.

• Nuclear

Research and development work has been completed for the 40,000 kilowatt HTGR power station being built at Peach Bottom, Pennsylvania, for the Philadelphia Electric Company and 52 other utility companies. The entire nuclear steam supply system of this first commercial High Temperature Gas-Cooled nuclear power station was the responsibility of the General Atomic division.

Results of this program have been reflected in other new contracts: a number of members of High Temperature Reactor Development Associates have contracted for advanced work in the nuclear power field; the ESADA group of New York State utilities is extending its work with us on design of a 300,000 to 500,000 kw station; the ARDA group of 11 western utilities is joining us in an advanced 250,000 kw design; a group of 22 utilities is sponsoring an advanced nuclear fuel program; and the original study for a 1,000,000 kw HTGR for the Atomic Energy Commission has led to a follow-on program based on this concept. The fusion research program conducted jointly with the Texas Atomic Energy Research Foundation is being continued.

• Industrial

Sales of compressed gases and related equipment increased again during 1963. Profits of the Liquid Carbonic division were significantly higher than in the previous year, and prospects for growth are excellent.

Coal and lime sales by the Material Service division increased during the year, although demand was slightly lower for such construction materials as concrete and heavy aggregates.

Production of high-precision motors at the Electro Dynamic division was quickly restored to normal at the new plant in Avenel, New Jersey, after destruction by fire of the former plant in Bayonne, New Jersey. In addition, the Dynapak line of high energy metal forming equipment and the line of air systems products, both previously produced at other divisions, have been transferred to Electro Dynamic.

* * *

The results of 1963 operations have placed the Corporation on a sound financial foundation. Our organization has been strengthened, and the balance among our diversified operations and key programs has been improved. We are planning increased expenditures both for research and development and for facilities. In spite of increasing competition in all areas, we consider the Corporation's prospects for the future as promising.

By order of the Board
Roger Lewis, President

Gen. Bradley Briefed On Projects' Status

Gen. Mark E. Bradley Jr., Commander of the Air Force Logistics Command, Wright-Patterson AFB, Ohio, was briefed by heads of three General Dynamics divisions on status of their military programs during a one-day visit to San Diego Feb. 7.

Presentations, held at GD/Convair division, were made by J. H. Famme, Convair president; John L. Lombardo, general manager of GD/Electronics-San Diego; and President J. R. Dempsey of GD/Astronautics.

Other GD men involved in the consultations were W. W. Fox, director of engineering, and R. R. Hoover, manager-transport projects, of Convair; and W. L. Van-Horn, vice president and program director Atlas weapons system, and Col. M. K. Andresen, AF Plant Representative, at Astronautics.

General Bradley was principal speaker the same day on the status of AF logistics today and in the future at the San Diego Post of the American Ordnance Society.

GD/FW Designs New B-58 Flight Control

GD/Fort Worth started work this month on a program to design, develop and flight test an improved flight control system for the B-58 Hustler, Ralph Reade, B-58 program director, announced.

Design of the prototype system will be worked out by GD/FW and vendors, and will be flight tested in a B-58.

VIP VISIT—Gen. Mark E. Bradley Jr., USAF, Commander AF Logistics Command (center), is greeted by GD/Convair President J. H. Famme and Lt. Col. C. W. Atterholt, Chief San Diego Air Procurement District, at arrival in San Diego Feb. 7.

Astronautics 'Cost Philosophy' 'Do It for Less, Retain Quality'

Division cost reduction philosophy was expressed for 40 participants in GD/Astronautics Value Engineering Seminar 2-64 earlier this month by President J. R. Dempsey who spoke at the opening session Feb. 10.

"Our purpose in these seminars is to do a great deal more with a great deal less money—and still deliver a quality product," Dempsey told the group. "You will be learning to think in the way we hope everyone in the division will think as they go about their daily work."

Dempsey linked seminar activities directly to the division's future potential, explaining, "The best basis for our continued success in a highly competitive industry is the ability to adapt to our customers' changing needs. This responsiveness is important because in the short history of GD/Astro, we have already seen changes in the needs and attitudes of our customers.

"In 1954, the requirement was to develop Atlas—fast! Cost and reliability were important, but time was the most vital element.

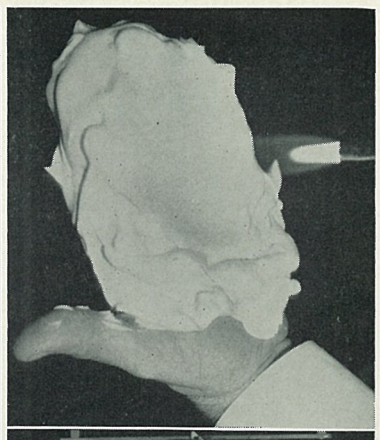
"Today we have attained a satisfactory level of strategic capability. Secretary McNamara has emphasized that the present need is for improved reliability and lower operating costs.

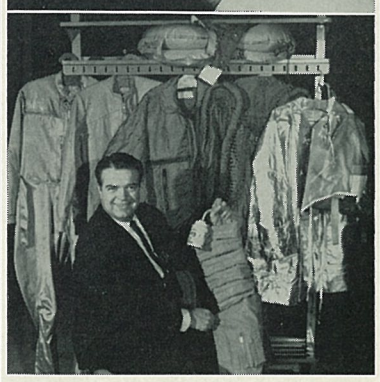
"We must get costs down," Dempsey stressed. "Not by 'cheapening' our products, but by producing at the lowest reasonable cost while retaining quality and function."

The President's remarks opened two weeks of intensive training and practical VE experience on hardware projects for the seminar participants, during sessions coordinated by Everett Lindem of educational services (Dept. 130-3).

Project presentations to management were made last Friday (Feb. 21).

"Look here, Webster . . . When I told you to relax, I didn't mean . . ."





HAVE FAITH! — Phil Cummins of GD/Fort Worth has courage of his convictions. That's his hand covered by shaving cream, and that's 3,000-deg.-hot acetylene torch!

McMaster, Fore Cited by AMC For Quality Job

Two GD/Pomona men, A. C. McMaster, director of quality control, and T. F. Fore, engineering chief of reliability, were cited last week by the Army Material Command, Washington, D. C., for key roles on the 110-man Reliability and Quality Assurance Task Force which has just completed a six-month study of AMC's quality assurance program throughout the nation.

The Task Force, which was divided into an executive committee and 11 task groups, recommended some 67 improvements in the program through which AMC insures the consistent quality of the more than a million items it handles, buys or manufactures for the U. S. Armed Forces.

McMaster served as chairman of Missile Command Division and Fore was chairman of Research and Development Division.

The study group was organized at the request of AMC commanding general, Lt. Gen. Frank S. Besson Jr., by the National Security Industrial Association with cooperation of American Society for Quality Control.

To implement recommendations made by the NSIA study group, AMC will establish a quality assurance office at its Washington headquarters, reporting directly to the commanding general. Concurrent action to strengthen quality assurance activities is also under way at AMC's seven subordinate commands. Of the 67 recommendations made, 65 per cent have been accepted for implementation while the remainder will be studied further.

Although the Army has long maintained a satisfactory quality assurance program, the proposed concept of "total quality control" will receive greater emphasis through Army Material Command to insure that all actions which bear on quality and reliability of end product will be subject to scrutiny and management at all levels. To industry this means that increased responsibility will be placed on supplier-contractors for top quality performance and that more reliability incentives will be placed in Army contracts.

SMU AWARDS SCIENCE DEGREES

Masters of science degrees in engineering administration from Southern Methodist University were recently awarded to Kenneth Pete Brookshier, senior aerosystems engineer, and George Stein, senior structures engineer, of GD/Fort Worth.

All Over 'Shave'

Foam-Filled Survival Suit Developed at GD/Fort Worth

Lightweight flying garb that can be transformed into an all-purpose, foam-filled survival suit in 18 seconds may soon be the salvation of pilots.

At least that's the hope of GD/Fort Worth's industrial security department, which has developed such a suit to protect far-ranging pilots in virtually any emergency —fire, decompression, or bailout over water or snow.

Key to the suit is rows of bladders, covered with a fire-repellant material and sewn over the uniform two inches apart.

In an emergency, the pilot simply triggers a pocket-sized container of pressurized foam at a point near the belt line. Each series of bladders inflates accordion-like, pushing the bladders together and forming a virtual one-inch coat of foam.

The transformation takes place within 18 seconds, and the foam adds only about 8 ounces to the weight of the uniform.

Developer Phil Cummins demonstrated the fire-retarding efficiency of chemical foam by spreading a coat over his hand, then applying an acetylene torch. The flame reached an intensity of 3,000 degrees F., but it didn't penetrate the foam.

"This is significant," Cummins pointed out, "because the temperatures created by a JP-4 fuel fire probably would range between 600 and 1,000 degrees F."

Inflated with foam, the survival suit could enable an airman to escape from a burning plane, or survive until rescued. It would keep him afloat indefinitely in water, or insulate him from bitter sub-zero weather.

"In effect," Cummins told GD/FW Operating Council members in a recent demonstration, "this suit takes the place of a Mae West, or separate suits made especially for survival in water, cold weather or fires.

"The layers of foam would also cushion the airman, to a certain extent, against shock and buffeting."

Development of the all-purpose suit is another step in industrial security department's continuing effort to improve fire-fighting techniques.

Time Swings Backward

Ceramics Viewed as Answer To Resist Supersonic Heat

Materials similar to those used by cave men over 15,000 years ago to make earthenware are employed by GD/Fort Worth engineers in producing certain components for modern Mach 2 airplanes.

"The art of ceramics is almost as old as man himself," points out J. E. Burroughs, senior design engineer, "but it promises to have countless space-age applications.

"Ceramic glass windows, for example, are used on B-58 frontal windows instead of plexiglass, which can withstand temperatures only up to about 220 degrees F. On a Mach 2-plus airplane, temperatures will commonly get up to about 400 degrees F. up front.

"Accordingly," Burroughs continued, "we're investigating usage of special ceramic materials not only for F-111 windows, but certain radomes and engine exhaust areas, where certain electrical requirements are needed and where extreme heat will be met."

As airplanes fly faster, ceramic materials will probably find increasing applications for a number of reasons. They're stronger at temperature, highly sensitive to electricity and moisture, and not susceptible to catastrophic failure with prolonged heating. (Highest known melting point for any material — a ceramic — is about 7,200 degrees F.)

Hypersonic vehicles, in particular, will look to ceramics for leading edges and other front units which must bear the brunt of heat during flight in dense atmosphere or during re-entry, Burroughs contends.

"A space vehicle might initially be subjected to temperatures of over 5,000 degrees F. in certain areas," Burroughs said, "and then perform in 3,000 degrees F. temperatures for over an hour during entry into the earth's atmosphere. Unsupported refractory metal alloys would fail in a short time under these circumstances."

One answer, he suggested, might be to cover the ceramic-coated refractory metal structure of the space ship with a ceramic composite material.

Clayware, dating back to around 15,000 B.C., was the first known use of ceramics, although natural-occurring glasses were used as early as the Stone Age. Glazes on stone beads have been found dating back to 12,000 B.C.

But an intensive study of the fundamental chemistry and physics of ceramics — plus basic research — didn't start until around 1925.

"In the past 35 years," Burroughs said, "the art has advanced tremendously. Today, ceramics are found in bathroom fixtures, spark plugs, safety glasses, insulators, television sets (up to 65 per cent of a TV set), fiber glass radomes, wheel-well fairings and nose cones made essentially of ceramic products, and in many other parts of modern jet aircraft."

THEN AND NOW—J. E. Burroughs, FW senior design engineer compares ceramic radome for jet plane with 600 A.D. jar made of clay-based ceramic material. Many other space-age applications are being found for ceramics.

Two From Pomona To Present Papers

Two GD/Pomona men will present technical papers during first annual Western Metal and Tool Exposition and Conference at Statler Hilton Hotel, Los Angeles, March 16-20.

John H. Rizley, chief of materials research and process engineering, will give a paper on "The Materials Engineer—An Effective Aid of Value Analysis" on March 17.

At March 18 sessions, J. R. Ewell, manufacturing engineer, will present a paper on "Machining Rene 41."

WESTEC is sponsored jointly by American Society of Tool and Manufacturing Engineers and American Society for Metals.

ELECTRONICS JOURNEYMEN — Stan G. Anderson (center) and Dick Singer are congratulated by H. W. Rubottom, head of GD/Convair educational services, upon completion of four-year apprentice program in electronics. Anderson has been assigned to Convair wind tunnel facilities; Singer has spent last two years of training in GD/Electronics.

GLAESER APPOINTED TO MANAGER POST

Personnel appointments within GD/Electronics-San Diego this month saw R. A. Glaeser named manager of the command and control systems engineering group, research and engineering-data products, effective Feb. 10.

Glaeser, formerly in data products requirements research, reports directly to A. H. Wisdom, manager of research and engineering-data products.

* * *

V. H. Johnson assumed responsibility for GD/E packaging and material handling at both data and sensor product facilities, as of last week, announced L. A. Wood, manager of material.

Johnson is charged with assisting all departments within GD/E on material handling problems. In addition, his duties include development of packing and packaging designs and procedures for GD/E products shipped to customers; compilation of packing and packaging estimates for material estimating function; review of incoming vendor packaging and packing for damages; development of packaging data forms for military shipments and procurement of Air Force or Navy approval.

GD/E Golfers Tour Valle Verde Links

Norm Dahl and Howard McCray were $5 richer after they turned in their scores at the GD/Electronics Men's Golf Club tourney Feb. 15 over Valle Verde course.

Dahl shot low gross of 77. McCray's 71 was good for low net.

Runners-up, who both took home $5 gift certificates, too, were Fred Harwood, second low gross, with a 79, and Keith Strowig, second low net, 78.

George Elmore's 84 placed him third in low gross. John Lombardo and Claude Ganger tied with 79s for third low net.

Golf balls went to Gordon Melvin, Ray Riegel, Larry Crump, and Ganger for their tee shots landing closest on par 3 holes. In the real money, $8.85 worth apiece, were blind bogie winners: McCray, Marlon Baird, Rex Brouillard.

Next tourney will be March 7 at Cottonwood course.

Mgt. Club Will Hold St. Pat's Day Meet

Green tickets, going on sale today, herald GD/Convair Management Club's St. Patrick's Day meeting on March 17.

The El Cajon Elks' Club, 1400 E. Washington St., El Cajon, has been selected as site of the club session. Social hour starts at 5:30 and dinner at 6:30 o'clock. Price of tickets, now available at all plant outlets, is $2.50 each.

Main order of business will be announcement of nominations for the coming term's slate of officers, said Ralph Montgomery, club president.

Sponsoring are Depts. 2, 3, 7, and 48 with J. J. Jackson general chairman.

Bond Will Head Thermodynamics

W. H. Bond has returned to GD/Convair division as chief of thermodynamics, according to an announcement early this month by C. W. Frick, vice president-engineering.

Bond, who joined the company at Convair in 1947, had been with Astronautics the last couple of years as advanced systems engineer. He succeeds B. F. North, who has gone to Astro as design specialist in Dept. 528-1.

Bond served at Convair as senior thermodynamics engineer, and spent a year and a half at General Atomic as staff engineer before returning to Convair in 1957 as thermo group engineer. He went to Astro the end of 1961.

North first joined Convair in 1950. He left the company in 1954 to join an eastern firm for a year. He returned to Convair in the fall of 1955.

Material Team Wins Hoop Title

GD/Material boys wound up the CRA plant basketball season with a clean slate. They were undefeated during first and second rounds to win the championship title.

They downed their closest rivals, 310 Pubs, in a 41-18 tilt in final games of the second half, played Feb. 18 on Muni Gym courts. The week before, the winning team defeated Product Service, 49-15.

Hi-Lows beat GD/E Chargers, 25-19, Feb. 19. The Chargers won their Feb. 18 scheduled game by a forfeit from Product Service.

Plant champs will be feted at an awards dinner.

Second-round standings were:

Team	Won	Lost
GD/E Material	4	0
310 Pubs	2	2
Product Service	2	2
Hi-Lows	1	3
GD/E Chargers	1	3

Matlock, Way Tie With 79s

Bill Matlock (Dept. 6) and Ralph Way (Dept. 400) tied at 79s for first low gross in CRA's Feb. 8-9 golf tournament at Coronado course.

Other winners in the 0-15 handicap flight were Bill Whitley (Dept. 6), first low net, 66, and Jerry Swarts (Dept. 48), second low net, 69.

In the 16-22 flight, Bob North (Dept. 6), shot an 86 for first low gross. Bill Gille (Dept. 25), finished with an 87 for second low gross.

First low net was tied up with Ernie Damarus (Dept. 400) and Jim Risner (Dept. 131) both scoring 69s.

Ed Hansard (Dept. 6) had low gross score of 90 in the 23-and-over division. Phil Pittman (Dept. 97) was second low gross with a 94.

First low net went to Bill Dean (Dept. 97), 69; Ron Williams (Dept. 6) had a 70 for second low net.

Hudson Retires, Vultee Veteran

Over 50 old-timers from Convair and Astronautics divisions met to bid farewell to Jack M. Hudson of GD/Convair at a Valentine Day's luncheon at the Town and Country Hotel.

Hudson retired that date after more than 30 years with the company.

He joined the Aircraft Development Corp., predecessor of Vultee Aircraft, the summer of 1933, and transferred to Convair in 1947 when Vultee was absorbed into the Consolidated Aircraft Corp.

A design specialist in landing gear and mechanism design, Hudson devoted his efforts to practically every aircraft that passed through the San Diego plant in the last 30 years—all of the Convair-Liner series, T-29, Sea Dart, Pogo, R3Y, F-102/106, 880/990, and many experimental planes which didn't reach production.

Toasting the many years they had spent together in the company were three men who were co-workers with Hudson at Vultee Division: Nick Keough and Bob Trussell of Convair, and Pete Nagy of Astro. A desk set was given Hudson as a memento.

Sports Car Buffs To Head For Indio

Sports car buffs will finalize plans for their weekend tour to Indio at the March 4 meeting in Convair main cafeteria, 7:30 p.m.

Dates of the Indio jaunt have been set for Friday (March 6) to Sunday (March 8). All GD/Convair and GD/E people with an interest in sports cars are welcome to join.

Tentative plans indicate that two groups will leave Friday and Saturday for eventual rendezvous at the Thunderbird Motel in Indio.

One contingent will meet at 6:45 p.m. Friday at the Astro parking lot and depart at 7 p.m. The other group will leave the same departure point at 8 a.m. Saturday.

Reservations must be made through G. P. Wilson, ext. 1825, Plant 1, by today (Feb. 26) to reserve motel accommodations.

Wallman Will Chair Committee on QC

Charles Wallman, quality control administrator at GD/Convair, relieved Sam Braun, GD/Astronautics chief of product verification procurement, as chairman of the General Dynamics Quality Control Working Committee, which met at GD/Astro late last month.

The two-day session was opened by L. I. "Russ" Medlock, GD/Astro manager of quality control.

Moderating discussions and presentations which followed were W. A. Huot, GD/Electronics-SD; M. E. Walker and G. R. Bailey, GD/Convair; F. K. McCafferey, S. K. Chambers and D. W. Schacht, GD/Pomona; K. M. Boekamp and T. J. Marcella, GD/Astro; J. Treese, General Atomic.

Indianapolis Races Topic at SAE Meet

General Dynamics members of Society of Automotive Engineers, San Diego Section, will meet March 10 for a dinner meeting at Town and Country Hotel's Atlas Room.

Social hour is at 6 p.m., dinner at 7. Price is $3.50 for members, $4 for non-members. A film of last year's Indianapolis races will be shown and a talk given by John R. Bond, publisher of Road and Track magazine.

Call Bob Chillo, ext. 1613, or Gordon Glass, ext. 2384, both Plant 1, for reservations.

WEIGHT ENGINEERS MEET TOMORROW

San Diego Chapter, Society of Aeronautical Weight Engineers (SAWE) will meet tomorrow (Feb. 27) at Red Fox Inn, Lafayette Motel, 2223 El Cajon Blvd. Social hour opens at 6:30 p.m., with dinner at 7:30.

GD Glider Fans Will Compete In Annual Meet This Weekend

A dozen or so glider enthusiasts from General Dynamics divisions in San Diego will take active part in this weekend's Annual Torrey Pines Glider Meet, some competing in meet events and others busy with the many ground chores.

More than 30 sailplanes from three states are expected to enter the soaring championships Saturday and Sunday (Feb. 29-March 1) at the Torrey Pines Gliderport. The 18th annual event is sponsored jointly by the Associated Glider Clubs of Southern California and San Diego Junior Chamber of Commerce.

Walter Mooney of General Atomic, as president of the San Diego glider organization, will have a major share in arrangements. As usual, Jim Spurgeon of Convair will be at his familiar post as master of ceremonies.

Astro men participating include Sterling Starr, Ernie Shattuck, Ray Brown, Tom Madigan, GD/Electronics participants are John Swinson and Dave Melvin. CRA Commissioner Don Larsen and Steve Kecskes are other Convair men involved.

The meet will run from 10 a.m. to 5 p.m. both days. Only charge is $1 a car parking fee.

U. of Cal. Professor To Speak Feb. 27

Dr. Leonard D. Newmark, professor of linguistics at the new University of California at San Diego, will speak at tomorrow's (Feb. 27) meeting of the San Diego Chapter, Society for Programmed Instruction.

Dr. Newmark will discuss his research and findings on the application of programmed languages and outline his plans for the integration of programmed instruction into the curriculum at the new university.

Members and guests will meet at 7:30 p.m. in the GD/Convair main cafeteria, Pacific Hwy. Griff Williams of GD/Convair, chapter president, urges all interested GD people to attend.

Seminar to Hear GD Value Experts

General Dynamics value engineering experts will outline principles and techniques of the cost reduction concept at a one-day VE seminar today (Feb. 26) sponsored by the San Diego Chapter, Society of American Value Engineers (SAVE).

Representatives from all San Diego industries have been invited to hear presentations and see displays in the Don Room of El Cortez Hotel.

H. P. Williams, GD/Convair value control manager, is program chairman with top value engineering administrators from GD/Electronics-SD, Astronautics, Convair giving presentations.

Convair Continues Salvage Schedule

GD/Convair salvage yard will continue on its every-other-week Saturday schedule for employee sales for the time being, according to R. H. Lange, in charge of material sales.

(GD/Astro's yard will be open to sales only one Saturday each month throughout the remainder of the year.)

Schedule for the next month is:

GD/Convair—Feb. 29, March 14, 28.

GD/Astro—March 7.

Scholarship Exams Slated March 14

A critical date is approaching for employees' sons and daughters who hope to qualify for General Dynamics Merit Scholarships upon entering college in 1965.

San Diego area students in their junior year of high school must arrange now to take the National Merit Scholarship Qualifying Test (NMSQT) on March 14. Students should apply for the test by contacting their high school principal's office immediately.

Team Rolls Needed In Volleyball Loop

Team rosters for the coming IRC volleyball league must be listed and turned into the CRA office by next Wednesday, March 4, reminds Pete Beyrer, ext. 1245, Plant 1.

Several Convair and GD/E teams are expected to take part in the industrial tourney play.

Teams may work out any Wednesday evening between 7-10 p.m. on Muni Gym courts, Balboa Park. League play will probably start the first part of April, said Beyrer.

Blanket Finish In Pistol Shoot

Close scores made Feb. 9 CRA Pistol Club competition touch and go in all events with Commissioner Joe Williamson barely holding his own to nose out Vern Mardis in the .22 Police Course.

Williamson shot a 293 for first in the master class, just a point ahead of Mardis. Jim Halfacre stood in third with 288.

A count of bull's-eyes decided winner of the expert class when W. G. Walker and Ralph Picard (GD/E) tied at 275. Walker was No. 1 with seven Xs. Picard had to be satisfied with a second spot with his five Xs. Ralph Castaneda of GD/E, new member of the sharpshooting outfit, scored 258 for third.

Society Will Hear Speech on Quality

Tickets to the March 9 meeting of San Diego Section, American Society for Quality Control, now are available to General Dynamics people.

Frank Moore, GD/Convair Plant 1, ext. 663; L. B. Settle, Astro main plant, ext. 2806; Bill Huot, GD/Electronics, Plant 1, ext. 2649; Ivan Kemper, GD/E Plant 2, ext. 36, will take reservations.

The dinner meeting will be held at Del Webb's OceanHouse with social hour at 6 p.m.; dinner at 6:30; and program at 8. Price is $3.50.

Las Vegas Humbled By Astro Couple

Two veteran ARA-CRA Gun Club members, Warner (Astro Dept. 780) and Edna Gatterman, walked away with a lion's share of trophies as well as Las Vegas' favorite coin—silver dollars—in a recent event there.

Competing in a handicap division (trap), Gatterman broke 96 of 100 birds to place second among 500 men contestants.

Edna broke 94 of 100 on consecutive days to win both divisions of a ladies' bracket.

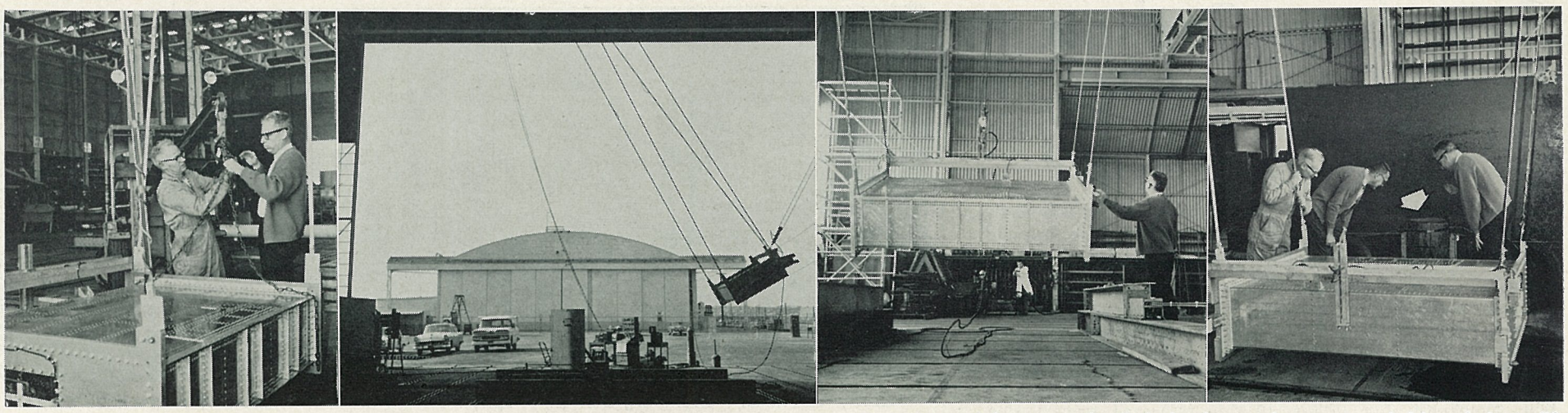
Gardeners to Learn Dwarfing of Trees

General Dynamics gardeners have a rare treat in store at the coming ARA-CRA Garden Club meeting, March 4, when they will have a chance to learn something of the ancient art of dwarfing trees.

ARA Commissioner Everett Henderson extends a special invitation to all interested GD people to attend the presentation next Wednesday night at 7:30 p.m., Floral Association Bldg., Balboa Park.

NOTED PHOTOGRAPHER WILL DEMONSTRATE

Walter Harvey, noted La Jolla photographer, lecturer and teacher, will conduct a demonstration of portrait lighting under studio conditions and lecture on techniques at the March 1 (7:30 p.m.) meeting of the ARA-CRA camera clubs at the Photo Arts Building, Balboa Park. On tap for the photographers March 15 is a special model shoot.



HIGH SWING — Sections of wing fuel tanks are swung by steel strap pendulum test rig at GD/Convair structures test lab to duplicate crash conditions during study for FAA. From left: Bob Egbert, lab test mechanic, and Dave Fletcher, test engineer, weigh tank before drop; tank silhouetted in mid-air during drop in ramp facility; Earl Moore, lab test mechanic in background, operates airdriven hoist to lift tank before drop against telephone pole section; Egbert, P. M. Nissley, structures analysis engineer, and Fletcher examine pole after it was struck by "crashing" fuel tank.

Sports & Recreation

Seven Dynamics Sportsmen Qualify for Button Awards

Seven General Dynamics sportsmen have qualified for button awards for their 1963 catches and kills from the Southwest California Anglers Button Award Association, reports CRA Fishing Club Commissioner Bob Menzie.

Winners, announced at the Feb. 18 club meeting, are:

Phillip Poche of Dept. 42, for a 5-lb., 12-oz. large mouth bass hooked from El Capitan Lake; George Theilacker (Dept. 6), 156-lb. marlin, caught off Point Loma. Theilacker had two other marlin entries, a 133-pounder, and another weighing in at 113 lbs.

R. W. Chambers (42) qualified with a 135½-lb. marlin caught off the Coronado Islands; and W. E. Burnett (Dept. 41) won his award with a 145-lb. marlin.

Joe Sopko, retired from GD/Convair, won an award for a 27-lb., 12-oz. Chinook salmon netted from Klamath River.

Ara Toon (Dept. 16-6) and Ruth Menzie, wife of Commissioner Menzie, both came within an inch of winning awards. Ara's 19-in. rainbow trout taken from Lake Murray and Ruth's 25-inch steelhead caught in the Klamath River, were both just an inch under the required lengths for button awards. Both were the largest fish of the species caught by CRA anglers during the year.

In the hunting bracket, Commissioner Menzie won a button for his 160-lb. five-point blacktail deer bagged at Beaver Creek and Jack Swank, CRA Gun Club commissioner, qualified with a 150-lb., four-point mule deer shot near Bridgeport.

Runners Slate Joint Journey

CRA Road Runners are busy making plans for a weekend rendezvous with trailerites from Douglas Aircraft next month.

Rolland Lathrum, as wagonmaster, assisted by Pete Peterson, is spearheading arrangements for the March 13-15 outing to Barrett Lake Trailer Park, located on Hwy. 94 east of Jamul. There the CRA travelers will be joined by Douglas Jetliners from Long Beach.

Hookups, modern rest rooms, swimming pool are available at the park with use covered by the $1.50 charged each night for a trailer with two people. Fifty cents is added for each extra person.

There will be no charge for persons attending the Saturday potluck and evening entertainment only. If they wish to swim, fee is 50c each.

This month's outing took the Road Runners into the desert to enjoy perfect weather at Vallecito Stage Depot, Feb. 7-9. Eleven units with 28 people joined in the campout. Most spent the daytime exploring the desert area for interesting sand concretions and rocks. The usual Saturday potluck was at 2 p.m. and Sunday morning devotionals led by Loretta Devin before the group broke camp to head homeward.

Carlton Oaks CC CRA Tourney Site

Entries open today (Feb. 26) for GD/Convair and GD/Electronics golfers who intend to participate in the March 14-15 CRA tourney at Carlton Oaks Country Club.

Starting times will be given until March 6, said Commissioner Ken Wulfemeyer. Call ext. 1705, Plant 1.

Sign Up Today For Keg Tourney

Dates of the 23rd annual CRA plant championship bowling tourney, open to GD/Convair and GD/Electronics keglers, have been set for two weekends in May—May 9-10, 16-17, announce Co-commissioners Jim Hayman and Mike Brooks.

Battle site will be Pacific Recreation bowling alleys.

Contestants may begin signing up today (Feb. 26). Entry forms are at CRA headquarters, Convair employee services, Bldg. 32, Plant 1. Also, there will be a supply at all alleys where CRA leagues roll: Pacific Rec, University Lanes, Victory Lanes, Frontier Lanes, La Mesa Bowl, Aztec Bowl.

Events open include mixed and men's teams; mixed and men's doubles, men and women's singles. Trophies go to high-scoring players in all divisions and all events (total performance), both men and women.

Handicaps will be based on book averages as of May 1, 1963.

Jo Ann Kranz Wins Girls' Feb. Tourney

All three top spots in the General Dynamics Women's Golf Club February tourney were won by first-place repeaters as they stroked over the hilly fairways of Valle Verde course Feb. 8.

Leading the field of 16 entries was Jo Ann Kranz who held first low net. In second was Mary Ransom, president of the girls' links group; and placing third was Margaret Clark of Convair.

Jo Ann and Mary, both of GD/Electronics, held low scores for the first two tourneys of the GD club last fall, September and October respectively. Margaret led the January tournament.

CRA Calendar

(Convair Recreation Association has some 40 activities in operation for Convair and Electronics people. For information call CRA headquarters, ext. 1245, Plant 1.)

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AEROMODELERS — Flying sessions Saturday and Sunday mornings, 8 a.m. to 1 p.m., Clairemont Mesa Flying Site.

BOWLING — Entries open today for annual CRA plant championship tourney, May 9-10, 16-17, Pacific Rec. Forms at CRA office, Bldg. 32, Plant 1.

BRIDGE CLUB — Play open to all General Dynamics people every Wednesday evening, 7:30 p.m., Convair executive dining room, Pacific Hwy.

CAMERA CLUB — Joint CRA-ARA meeting March 1, 7:30 p.m., Photo Arts Bldg., Balboa Park.

GARDEN CLUB — Joint CRA-ARA meeting March 4, 7:30 p.m., Floral Association Bldg., Balboa Park. Bonsai demonstration by Japanese expert.

GLIDER CLUB — Annual Torrey Pines Glider Meet Feb. 29-March 1.

GOLF — Entries open today (Feb. 26) to March 6 for CRA tournament at Carlton Oaks, March 14-15. Call ext. 1705, Plant 1, for starting times.

GUN CLUB — Monthly club shoot March 1, Gillespie Field Range.

ICE SKATING — Thursday ice skating sessions, Mission Valley Ice Plaza, 6:30-8 p.m.

MODEL RAILROAD — Work nights, Fridays, 7:30 p.m.; open sessions, Sundays, 1-4:30 p.m., House of Charm, Balboa Park.

MOVIES — Reduced prices for General Dynamics people at State Theater, Euclid and El Cajon Blvd. General admission: adults 75¢; children 25¢.

PISTOL CLUB — CRA club shoot March 8, 9:15 a.m., San Diego Police Pistol Range, Federal Blvd. and Home Ave.

RADIO CLUB — Next meeting Thursday (March 5), 8 p.m., Harbor Drive club headquarters.

RIDING CLUB—Regular meeting Thursday (March 5), 7:30 p.m., Gillespie Field Clubhouse.

ROAD RUNNERS — Weekend outing to Barrett Lake Trailer Park March 13-15.

ROCKHOUNDS — Meeting March 12, 7:30 p.m., Gillespie Field Clubhouse. Lapidary workshop open Wednesday evenings, 7-9 p.m.

SOLO FLYERS — Registration open for new ground school course. Call Don Larsen, ext. 2470, Plant 1.

SPORTS CAR CLUB — Meeting March 4, 7:30 p.m., Convair main cafeteria, Pacific Hwy. Tour to Indio weekend March 6-8.

STAMP CLUB—Meeting March 5, 7:30 p.m., Convair executive dining room, Pacific Hwy.

VOLLEYBALL — Entries close March 4 for teams to play in IRC league. Call Pete Beyrer, ext. 1245, Plant 1.

WATER SKI CLUB — Skiing weekends on Mission Bay on phone-call basis. Call Gene Sevigny, ext. 2701, Plant 1.

Fuel Tanks 'Crashed' In FAA Safety Study

Airplane fuel tanks crashing into a telephone pole in a General Dynamics/Convair study program will allow passengers to ride with easier minds in planes of the future.

Seeking means of protecting passengers from aircraft fires, caused largely by ignition of fuel from bursting tanks on crash, Convair engineers are designing integral wing fuel tanks, crashing them, repairing, recrashing, and redesigning.

This study contract, which will have extended over the greater part of a year by completion date this May, is authorized by the Federal Aviation Agency. Convair's $104,000 fuel containment structural design study is part of an overall FAA program to eliminate, as far as possible, hazards of aircraft crashes and crash fires.

Main objective of Convair's share of the project is to design a fuel tank strong enough to keep fuel from spilling out when a plane in trouble slides along the ground, or hits solid objects—trees, buildings, poles—during crash landings.

If the wing fuel tanks can remain intact at least until loads are great enough to break the entire wing away from a sliding fuselage, fire danger to passengers and crews could be greatly lessened, explain Convair engineers heading up the study. This break-away of the wing, in itself, would be a significant factor in minimizing loss of life from encompassing fires as passengers, otherwise not seriously injured, attempt to escape the aircraft.

Tests, now under way in the GD/Convair structures test laboratory, show that detailed design of internal structures of fuel tanks is extremely important. Specimens strengthened with addition of doublers on top and bottom skins can survive crash conditions better than unreinforced tanks, said P. M. Nissley, structural analysis engineer assigned to the program.

Nissley is coordinating the fuel tank design and testing under T. L. Heid, engineer in charge of the Convair study.

"Also, specimen tests, so far, indicate that sloshing of fuel inside tanks may have little effect on a tank's breaking during extreme deceleration," Nissley went on to say.

The entire Convair project has been divided into three sections: structural design, study, actual test drops of specimens (now in progress), and feasibility evaluation which will wind up the program this spring.

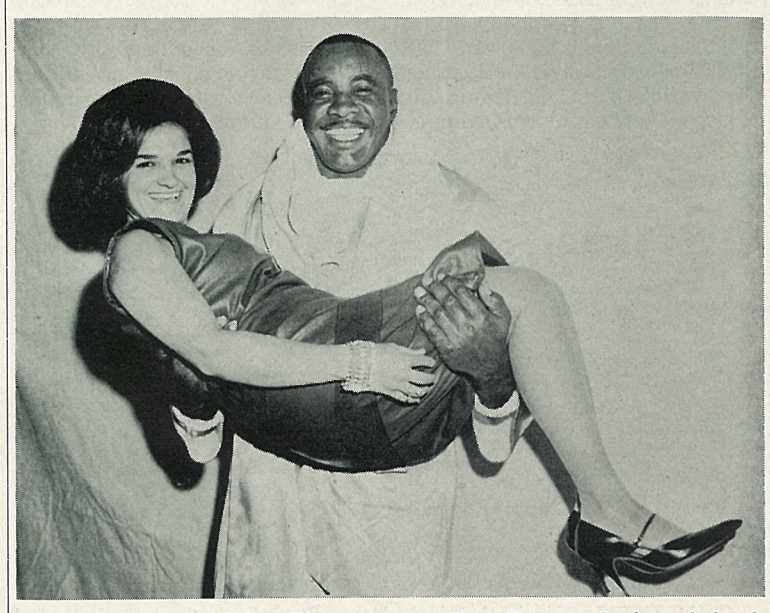
The second phase—testing of fuel tank specimens in drops at Convair's structures test lab — will extend into the middle of next month under direction of Nissley and D. A. Fletcher, test engineer. Ed Schiff is assistant group engineer in charge of structures test lab activities.

Altogether, a half dozen aluminum tanks of different type structure are being swung on a pendulum-like test rig against solid objects to see how they stand up in arrested and impact drops. Drops have been performed from as high as 40 feet.

Arrested drops duplicate the high internal fuel pressures during prolonged deceleration — a plane sliding along the ground, out of control. Impact drops (hitting solid objects) are made against an actual telephone pole section, donated by the San Diego Gas & Electric Co., and into a sand bank to simulate a crash into the ground.

Tanks are weighed, empty and full, before drops. Empty weight runs in the neighborhood of 800 lbs. When completely full, they hold 240 gallons of water which takes the place of inflammable fuel, and weigh 2,800 lbs.

Test results will be weighed and evaluated in the final analysis. New design concepts worthy of further development will be checked out on a basis of costs versus benefits. Recommendations in the report going to FAA will incorporate such factors as manufacturing needs, production and maintenance costs, effects of changes in weight.



EASY, MAN, EASY — There were smiles all around when defending heavyweight champion Sonny Liston hoisted 110-lb. Marlene Qualiato (daughter of Sam Qualiato, GD/Convair Dept. 25) when she visited his Las Vegas training camp recently.

Stromberg-Carlson Looks Back on 70 Yrs. Of Exciting History

(Continuing a series of full-page articles dealing with individual General Dynamics divisions, this feature sketches background and present of Stromberg-Carlson of Rochester, N.Y.)

Two Swedish immigrants in Chicago watched the changing telephone scene with interest.

Independent telephone companies were springing up across the country, some to compete with Bell companies and others to bring telephone service to areas which had none.

The year was 1894. Alfred Stromberg and Androv Carlson thought they could make a better telephone instrument. With ingenuity their principal asset, they pooled $1,000 and organized a new company. Their fame as a quality manufacturer soon spread. In 1902 they were persuaded to move to Rochester, N. Y., and a few years later they sold their successful company to local investors.

Today, telephones are just one aspect of the broad communication business which is Stromberg-Carlson's, but the independent telephone industry continues as the principal market. Products of Stromberg-Carlson, now a division of General Dynamics Corporation, cover the entire communications field and provide voice and data transmission via wire and radio link. S-C communication systems serve Dulles International Airport, Cape Kennedy and all Titan missile bases. More than 3,800 S-C telephone exchanges are in use throughout the country.

Stromberg-Carlson is headed by John H. Voss, division president, who himself holds 62 patents in the field of telecommunications.

S-C CAN BOAST MANY "FIRSTS"

Stromberg-Carlson "firsts" in communications are many. Famous for pioneering, S-C introduced the first self-contained (bell-in-the-base) telephone in this country in 1931, the first dust-free dial in 1946, the first completely waterproof telephone in 1949 and the first solid-state electronic switchboard in 1956.

The fast pace of modern business demands the most advanced communication techniques and Stromberg-Carlson provides switchboards with flexibility to meet any need. A Touch-Lite turret, smaller than a typewriter, is manufactured for use by an office receptionist and provides visual indication of the status of all lines and requires only a touch of a key and a twist of a dial to extend, transfer and originate calls. Message-waiting systems provide complete motel-hotel communication services. Multi-line telephones place miniature switchboards on executives' desks.

Businesses in several locations are now served by electronic private branch telephone exchanges. These pioneer installations of Stromberg-Carlson's DYNALOGiC switching systems ushered in a new era in telephony — electronic communications. In 1962 this Rochester division installed the world's first electronic dial telephone office to serve an entire community.

Essentially, special purpose computers which make connections more rapidly than electromechanical systems, these DYNALOGiC electronic systems provide improved transmission and many new subscriber services. Call-forwarding abbreviated dialing and even Touch-Button telephones are now realities.

WW I SPARKED NEW PRODUCTS

Until World War I the company manufactured only telephone equipment, but during that war it turned its effort to all-out production of many types of communications equipment for the government. Specially designed telephone sets were provided for artillery observers and gun plotters, camp switchboards, combination field telephone and buzzer telegraph sets.

Stromberg-Carlson telephones were installed in the palace of Versailles to carry official reports of the peace conference to a waiting world. A quarter of a century later, this precedent was followed at the Nuremberg trials in Germany. At the formal surrender of Japan aboard the USS Missouri, the step-by-step activities during the historic capitulation were announced to crew members over Stromberg-Carlson sound equipment.

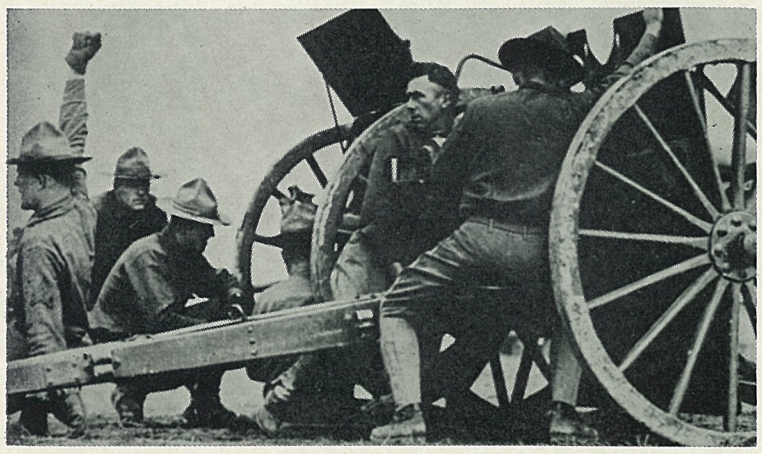
In 1920 the first signs of a new industry began to appear when crystal radio sets came into vogue. A heavy demand for headsets, which the company had been manufacturing since 1915, plus jacks, plugs, cords and similar products, developed almost overnight. After extensive research the first Stromberg-Carlson home radio receiver appeared on the market in 1924.

In 1926 Stromberg-Carlson became the first manufacturer to provide a phonograph jack in the radio chassis. In 1938 the company pioneered in the development of frequency modulation (FM) radio, and then came television. It was 1939 when the first Stromberg-Carlson television sets went on the market in New York City, the only area then with telecasts. Paging, intercommunication and sound equipment product lines were developing simultaneously.

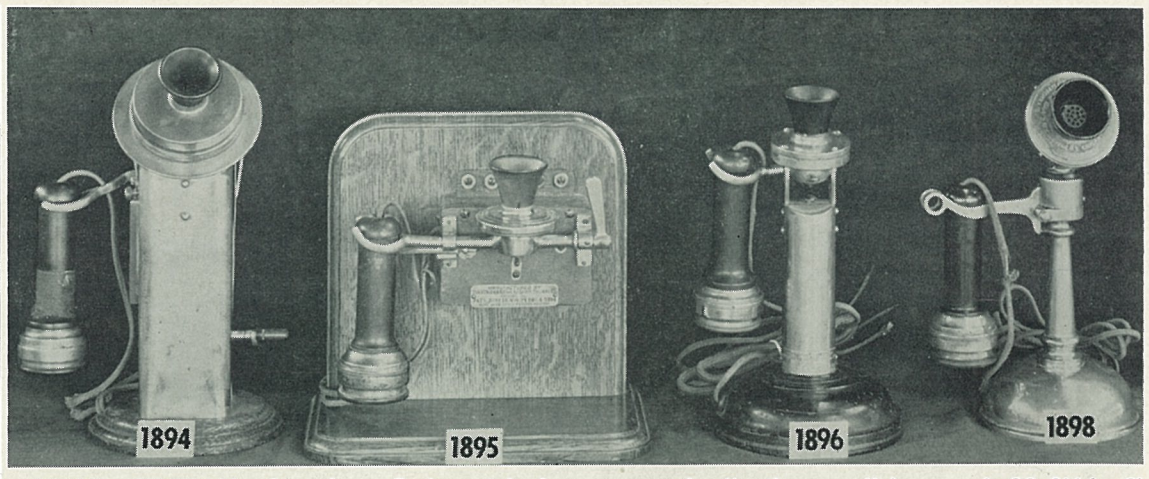
During World War II, Stromberg-Carlson's efforts again were devoted to meeting military requirements. Air navigational devices, radar detectors, airborne radio beacon markers, shipboard battle announcing systems and mobile radio receivers and transmitters came off the assembly lines.

EXPANSION OF S-C FOLLOWS MERGER

In 1955, Stromberg-Carlson merged with General Dynamics Corporation, becoming the communications arm of this billion-dollar corporation. Expansion followed quickly.



OVER THERE — In both World Wars Stromberg-Carlson followed the colors to the battlefield. Above, Doughboys in France in 1917 fire field piece. Stromberg-Carlson field telephones contributed to battle communications.



HELLO, CENTRAL!—Stromberg-Carlson telephones were the "cat's meow" (or was it 22 Skidoo?) away back when . . . And still ahead of the pack nowadays they're "tough, man, tough."

The division was heavily engaged in electronics. Aircraft landing aids, automatic test equipment, navigation systems, data devices and missile guidance equipment were just a few of the electronic systems designed in the division's laboratories. So great were the requirements for these systems that the division discontinued the manufacture of television receivers, home radios and high fidelity equipment to devote its entire facilities to developing advanced telecommunication, electronic and commercial sound equipment. Business grew and Rochester employment increased.

Meanwhile, the telephone industry throughout the country was rapidly converting to dial equipment. This market was growing at a pace faster than even the mushrooming electronic industry. The independent operating telephone companies, Stromberg-Carlson's principal customers, were serving communities with great growth patterns.

ACCENT PLACED ON TELEPHONY

To develop this market General Dynamics reorganized its Rochester operations in 1961 and created two separate divisions. Electronic equipment for the military and commercial sound equipment were assigned as product lines to General Dynamics/Electronics-Rochester and are now in production at that division's plant at 1400 Goodman Street North, Rochester.

All telecommunication products, designed for the independent telephone industry and certain industrial and government users, became the product lines for Stromberg-Carlson at 100 Carlson Road, Rochester. Thus, the original corporate name again was applied essentially only to products for the telephone industry. But what a change these products are from the equipment produced by two Swedish inventors at the turn of the century!

Touch-Button telephones, by which the subscriber depresses keys rather than turning a dial, are now in use.

Multi-line telephones handle many lines on one instrument.

Stromberg-Carlson's multiplex systems stack 240 channels on a single transmission path.

Microwave carries data and voice across the roughest terrain.

Automatic toll ticketing equipment makes direct distance dialing practical for independent telephone companies.

Electronic switchboards which nearly "think" for themselves provide services hitherto thought impractical to many subscribers.

With an electronic telephone system a person who must be away from his telephone can dial a special digit and the number of the telephone to which he wishes his incoming calls forwarded. All future calls to his telephone then automatically ring at the phone where he will be.

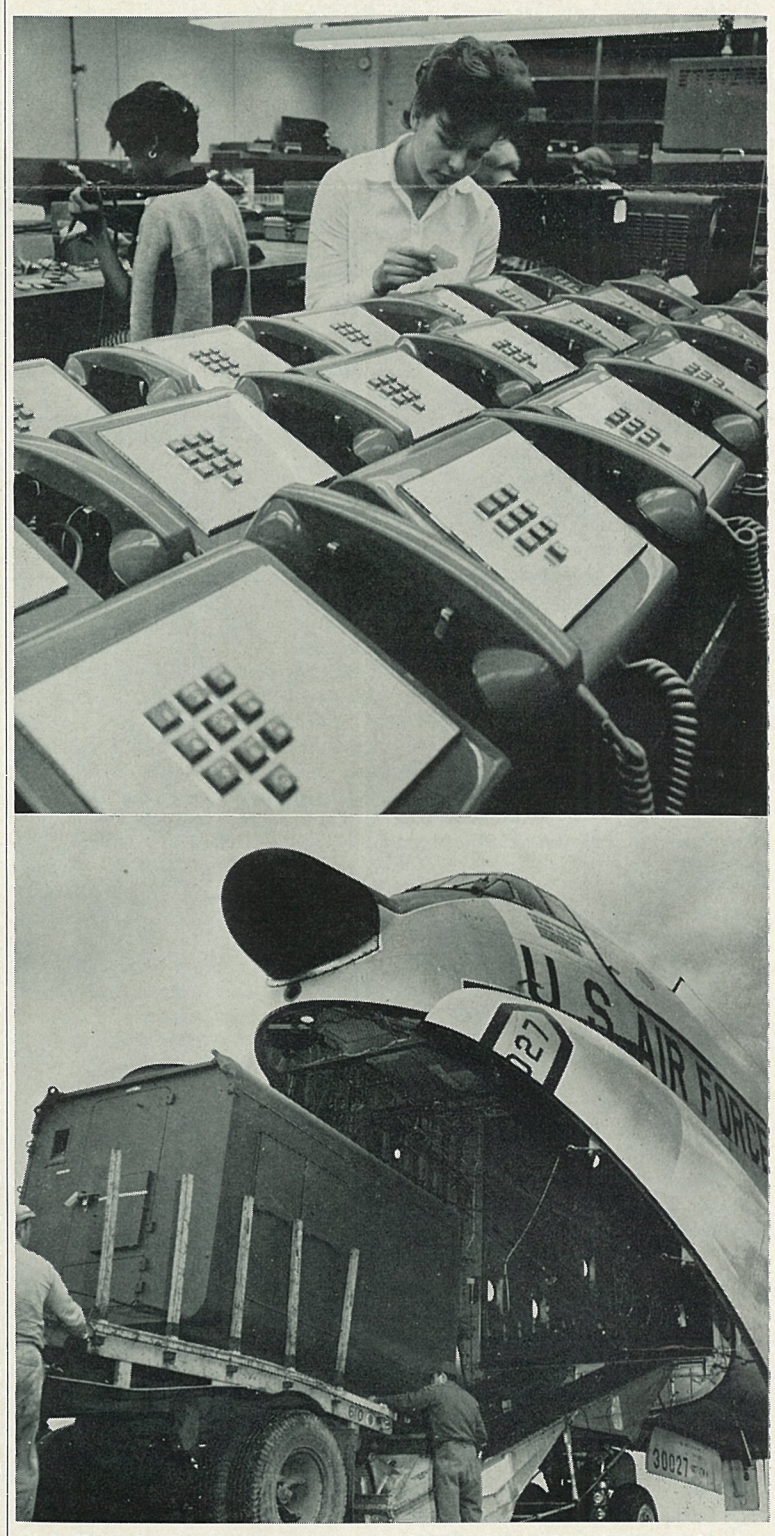
Direct inward dialing makes it possible to reach business extensions without going through an operator.

As Stromberg-Carlson begins its seventh decade, its strength still lies in highly skilled workers, men and women who have pride in craftsmanship. Many have long company service records. The division's Quarter Century Club is one of the largest among manufacturers of telecommunications products.

S-C Products Cover Wide Range In Telecommunications Field

Stromberg-Carlson's products span the broad field of telecommunications and are used by telephone operating companies, industrial firms and government. They include:

Turnkey communication systems.
XY electromechanical switchboards.
DYNALOGiC electronic switching systems.
Electronic register senders.
Voice and data transmission equipment.
Telephone instruments.
Telephone components — handsets, relays, switches.
Toll ticketing systems.
Communication control consoles.
Trailer-mounted telephone systems.
Test equipment.
Carrier and multiplex equipment.
Message circuit dialing systems.
Military research and development.



A FAR CRY—Touch-Button telephones (top photo) in production at Stromberg-Carlson are checked by Joan Wenzel (foreground) and Barbara McGowan. Compare these to S-C's first phone introduced in 1894! Military also is Stromberg-Carlson customer. In lower photo "hut" complete with communications systems is picked up at Rochester by USAF plane for rush delivery.

GD

SAN DIEGO EDITION
(Serving GD/CONVAIR
and GD/ELECTRONICS)

GENERAL DYNAMICS NEWS

Vol. 17, No. 6 PUBLISHED BY GENERAL DYNAMICS CORPORATION 52 Wednesday, March 11, 1964

All Divisions to Push Bond Sign-ups in May

General Dynamics Corporation's 1964 U. S. Savings Bonds campaign will take place early in May, simultaneously at all divisions.

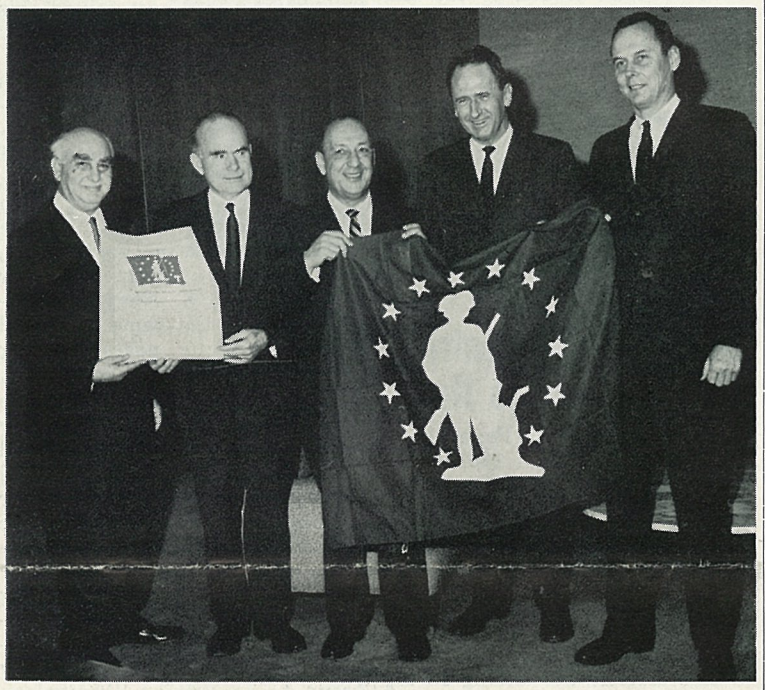
"Share in America" will be the campaign slogan this year.

Algie A. Hendrix, vice president-industrial relations, said the drive will be coordinated at all locations and involve advance publicity and direct contact with all employees not currently buying bonds by payroll deduction.

"Results of the 1963 campaign were gratifying and earned honors not only for the Corporation but for a number of divisions as well," Hendrix reported. "However, we intend to do even better this year."

Latest figures on participation show Astronautics division in front with 73 per cent buying bonds regularly, followed closely by Convair with 71 per cent. Other leaders include Fort Worth with 66 per cent, Pomona at 64 per cent and GD/Electronics-San Diego, 60 per cent. Corporate Office buying stands at 66½ per cent.

Regular bond buying through payroll deduction advanced substantially at all divisions as a result of 1963 drives.



TREASURY AWARD — General Dynamics has received Treasury Department's "Minuteman Award" for employee performance in buying U.S. Savings Bonds by payroll deduction. At ceremony in New York Office were, from left: Sy Gruber, Manhattan area representative, Savings Bonds Division; Algie A. Hendrix, General Dynamics vice president; Howard Smith, New York State director of Savings Bonds Division; Roger Lewis, General Dynamics president; Edwin C. McManus, GD personnel administration.

'Success' Talk, Nominations On Convair Mgmt. Program

"Success is a State of Mind" will be topic of W. P. Brotherton, advertising manager of Ryan Aeronautical Co., as guest speaker at the St. Patrick's Day meeting of GD/Convair Management Club.

Location of the March 17 session is the El Cajon Elks' Club, 1400 E. Washington St., El Cajon with social hour at 5:30 p.m., dinner at 6:30.

Program features will include nomination of officers for the coming term, presentation of Mugs of the Month and Mac-Save-its.

L. G. Lawson, nominating committee chairman, will announce the slate of nominees chosen by his committee and nominations also will be accepted from the floor. Serving with Lawson are Frank Blair, John Doig, Miles Stepich, S. W. Swenson, N. R. Keough, J. J. Jodka, H. R. Kennedy, A. L. Hendricks.

Results of balloting will be announced at the April 15 meeting.

Members are urged to get their dinner tickets for the March meeting, $2.50 each, as soon as possible from usual outlets. Sponsoring departments are Depts. 2, 3, 7, and 48.

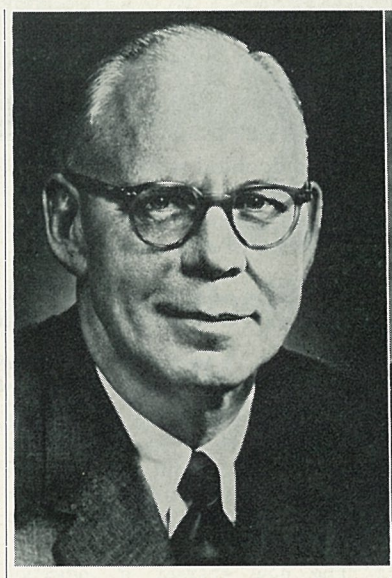
GD/E Club to Hold First 'Fun' Night

A real fun night is in store for GD/Electronics-SD Management Club members at their March 19 meeting.

Board members are planning special entertainment and prizes at Vacation Village on Mission Bay, said T. E. Morris, program chairman.

All members are urged to join in the fun and games with social hour at 5:30 and steak dinner at 7 p.m.

Tickets, $3.50 each, now are on sale by department representatives at Plants 1 and 2.



William C. Bolenius, former vice chairman of American Telephone and Telegraph Co.

David Packard, president of Hewlett-Packard Co. of Palo Alto, Calif., electronics manufacturer.

John A. Sargent, former executive vice president of General Foods Corp.

Division Value Aims Outlined

Naval officials attached to the BUWEPSREP Office in San Diego heard General Dynamics/Convair's overall cost reduction organization outlined in a special presentation last month (Feb. 27).

H. P. Williams, manager of value control and cost reduction, explained to Cdr. R. A. Evans, BUWEPSREP, and members of his staff, measures installed by the division to assure compliance with Department of Defense requirements.

"We are continuing our well-established cost reduction and value assurance procedures and taking all steps necessary to accelerate and intensify cost reduction efforts to assure that they meet or exceed requirements spelled out by the government," stressed Williams.

In re-emphasizing the divisional cost reduction organization, Williams recently was named manager of all value control and cost reduction functions, reporting directly to Division President J. H. Famme. All related areas, including Resources and Management Economics, Cost Improvement Proposal and Employee Suggestion section, now functionally report to Williams for a complete check on all cost-saving efforts.

He stressed that GD/Convair's organization is specifically directed toward fulfilling the three primary cost-reduction objectives of Secretary of Defense R. S. McNamara: Buying only what is needed (in Williams' words, this means doing a thorough value engineering job at both the value assurance and value improvement level); buying at the lowest sound price—in other terms, continual application of good sound purchasing practices; reducing operating costs—minimizing operating costs in both resources and management economics.

Convair's value control pro-

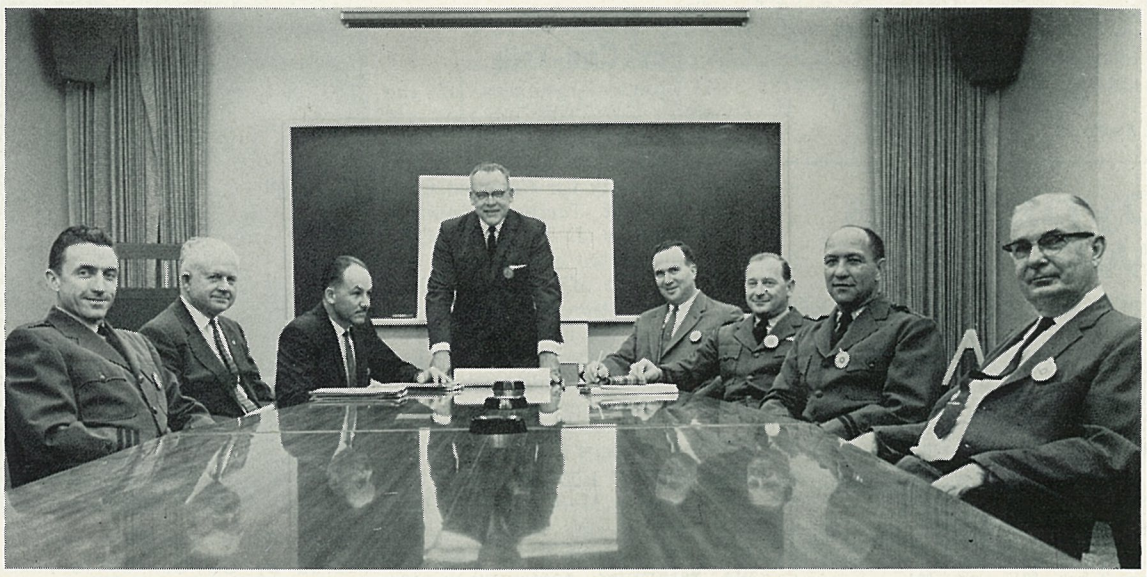
(Continued on Page 2)

Nine Ideas Help Speed C-141

E. E. Miller, GD/Convair Dept. 141 assistant foreman, set a record of some sort when nine of his ideas to streamline operations in the C-141 empennage area were put into effect the last two weeks of February.

Miller's Cost Improvement Proposals, though totaling only around $500 in actual dollar savings, were all designed to eliminate hand methods in fabrication of small C-141 parts.

According to Vic Janusz, supervisor of facilities control and cost reduction, such accomplishments as Miller's are most encouraging. "Even if the dollars saved do not add up to great sums, it's the constant thinking of ways to improve methods that will mean a great deal to the company in the long run."



VE OUTLINE — Naval officials attached to BUWEPSREP office in San Diego learn details of GD/Convair's value engineering organization from H. P. Williams, manager of value control and cost reduction. Around table from left are: Cdr. Roy A. Evans, BUWEPSREP; F. J. Wright, contracts division director; B. L. Grondona, engineering division director; Williams; Roy W. Akers, administrative division director; Cdr. E. J. Frankiewicz, assistant BUWEPSREP; Lt. D. L. Boesch, industrial division director; Elby Bass, security supervisor.

Distinguished Executives Join Board

William C. Bolenius, David Packard and John A. Sargent have been elected directors of General Dynamics Corporation, Roger Lewis, chairman and president, announced last week.

Sargent, formerly executive vice president of General Foods Corporation, has also been appointed a vice president and senior financial officer of General Dynamics, Lewis disclosed.

Bolenius retired last year as vice chairman of American Telephone and Telegraph Company. Packard is president of Hewlett-Packard Company of Palo Alto, Calif., manufacturer of precision electronic equipment.

* * *

Sargent spent six years with General Foods, joining the company as vice president-finance in 1957. He was named executive vice president in 1959 and was elected a director later that year.

Earlier, he had served as president and a director of Diamond Alkali Co. from 1954 to 1957, having joined that company following service in World War II. Commissioned as a captain in 1942, he was discharged as a colonel. He received the Legion of Merit for his work as a staff officer in the Production Division of the Army Service Forces.

Born in New York City in 1909, Sargent received a B.S. degree in applied economics from Yale University in 1933. Prior to World War II, he was a sales executive with American Radiator & Standard Sanitary Corp. and Republic Steel Corp.

* * *

A native of Auburn, N. Y., Bolenius began his 42-year career with the Bell System in 1921 as a traffic inspector with the New York Telephone Co. in New York City.

After serving in various positions throughout the state, he was named vice president and general manager for upstate New York in 1943. Three years later, he was appointed president of the Wisconsin Telephone Co.

He was appointed a vice president of American Telephone and Telegraph Co. in 1948, executive vice president in 1958 and vice chairman in 1961. He served as a director of American Telephone and Telegraph and Southwestern Bell Telephone and Indiana Bell Telephone from 1959 until his retirement as vice chairman in December, 1963.

Bolenius is also a director of Morgan Guaranty Trust Co. of New York, International Nickel

(Continued on Page 6)

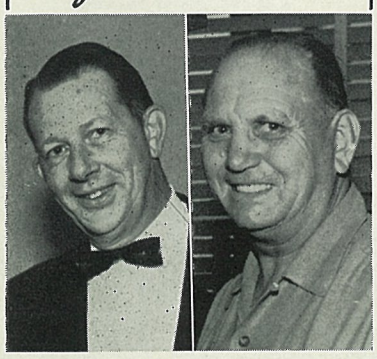
Safety Belt Reels On Sale at Convair

Seat belt reels to keep seat belts neatly rolled at the edge of car seats when not in use now are on sale at GD/Convair safety crib at discount price.

The spring-type retractors, called Roll-a-Belts, are easy to install, slipping onto the seat belts with no other attachments.

Discount price is $2.10 a pair for one belt, plus .08 tax. Normal retail price is $3.95.

Log Book Entries



Two received 25-year emblems at San Diego recently. At left is Roland W. Allen, GD/Electronics Dept. 74-20, and at right is Booth S. Davis, GD/Convair Dept. 171.

Service Emblems

CONVAIR

Service emblems due during the period March 1 through March 15.

Thirty-year: Dept. 4-4, F. A. Rosso.

Twenty-five-year: Dept. 131, E. L. Williams.

Twenty-year: Dept. 3-1, R. B. Purdy; Dept. 16-4, Farrell Washburn; Dept. 44-3, Manuel Gonzales.

Fifteen-year: Dept. 6-25, J. W. Hudson; Dept. 28-0, J. P. James.

Ten-year: Dept. 6, P. A. Johnson, W. J. Smith Jr.; Dept. 16-1, A. J. Kelly; Dept. 34-1, M. D. Hammersley; Dept. 115, Jacob Zulick.

ELECTRONICS

Twenty-year: Dept. 41-30, C. M. MacKenzie.

Fifteen-year: Dept. 73-10, Elizabeth E. Williamson.

Ten-year: Dept. 72-00, Treasure U. Ogle.

Awards

CONVAIR

Employee Suggestion awards approved for periods ending Feb. 21 and Feb. 28.

Dept. 101, J. H. Hammer, $63.30.

Dept. 119, W. H. Carson, $15; F. H. Felchin, $101.40; L. O. Smith Sr., $10.

Dept. 141, M. M. Doerr and R. B. Maddox, joint award, $24.60 each.

Dept. 400, F. D. Slavens, $100, partial payment.

Cost Improvement Proposals approved for the same periods.

Dept. 15, J. I. Laird.

Dept. 42, H. C. Leppart.

Dept. 115, G. D. Carroll.

Dept. 131, W. Martin.

Dept. 141, E. E. Miller (nine proposals).

Retirements

CONVAIR

BARRY—Ethel D., Dept. 14-8. Seniority date April 8, 1952, retirement effective Feb. 7.

FERGUSON—Fred, Dept. 44-3. Seniority date Feb. 27, 1952, retirement effective Feb. 25.

GISKIN—Barton B., Dept. 14-4. Seniority date July 17, 1956, retirement effective Feb. 10.

HAWES—Alfred P., Dept. 48-62. Seniority date Oct. 30, 1950, retirement effective Feb. 9.

MARTIN—Forrest, Dept. 105. Seniority date Oct. 11, 1950, retirement effective Feb. 4.

SIPPERLY—Carl E., Dept. 180. Seniority date Jan. 8, 1943, retirement effective Feb. 27.

STEINER—SaraLee S., Dept. 216. Seniority date March 23, 1951, retirement effective Jan. 8.

WEMPLE—Irene I., Dept. 860-1. Seniority date June 25, 1941, retirement effective Feb. 28.

YEARWOOD—Volney H., Dept. 25-2. Seniority date June 12, 1952, retirement effective Feb. 28.

Deaths

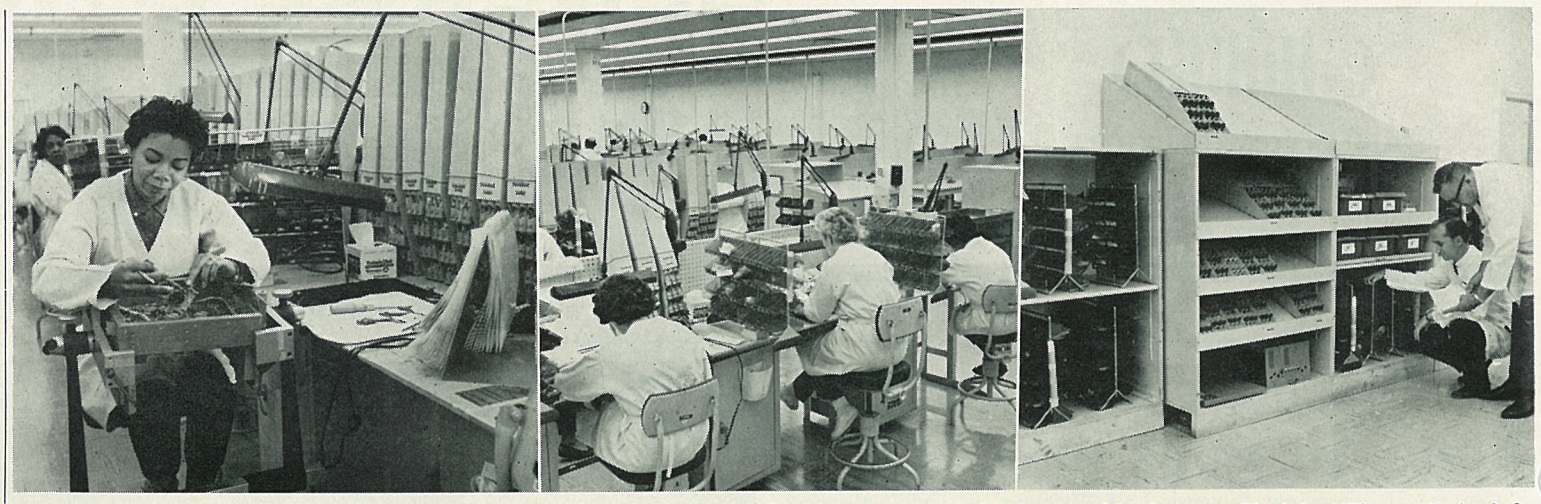
CONVAIR

VAILE—Edwin M., Dept. 44-3. Died Feb. 24. Survived by wife, Alma J., and son.

WEIGHT—Bernald W., Dept. 6. Died Feb. 21. Survived by wife, Dorothy.

ELECTRONICS

HOWARD—Leslie, Dept. 35-00, GD/E Plant 2. Killed Feb. 19 in glider accident near Elsinore. Survived by sister.



VERSATILE—New "library system" has doubled work space for GD/Electronics-SD. Stations now can be quickly adapted to specific work required. At right, Harold Palmer, mfg. analyst (kneeling), and E. M. Starkweather, supervisor of assembly methods and planning, check portable layouts filed in "library." At left, Danquin Woods, GD/E assembler, works at station equipped for component task. In center background are some 100 work stations now released for additional operations.

Pile Transfers To GD/E Post

Donald H. Pile has transferred from the GD/Pomona division to assume the post of Air Force requirements engineer for sensor products at GD/Electronics-San Diego, according to an announcement by J. W. Colvin, GD/E manager of plans and programs.

He joined the company at Pomona in 1952 and held the position of advanced product planning representative before joining GD/E. Previously he was assistant project engineer with the Terrier guided missile program, and from 1952 to 1955, design group engineer in the component evaluation group, responsible for coordination of tests on missile components and complete Terrier missiles.

Don Pile

Before joining General Dynamics, Pile was a research engineer with Boeing Co. in Seattle. He was assistant chief of the plans branch at Wright Air Development Center's Aircraft Radiation Laboratory Electronics Sub-division, Dayton, Ohio, from 1946 to 1949.

J. M. Adamson In Design Post

Appointment of J. M. Adamson as director of design and development at GD/Convair, effective Feb. 24, was announced by C. W. Frick, vice president-engineering.

Adamson has headed the C-141 empennage program at Convair as program manager since the fall of 1961.

Reporting to him in his new capacity will be managers of structural design, mechanical and support systems engineering, electronic systems, customer service and engineering flight test, engineering prototype facility, and engineering administration.

R. W. Miller, who has been group engineer-structural design on the C-141 project, will take over Adamson's former C-141 responsibilities, reporting directly to Division President J. H. Famme.

GD/Electronics Filing System Saves Space in Assembly Area

A "library" not of books but of job operations, has practically doubled the amount of available space in the electronic assembly area of GD/Electronics-San Diego.

The new system of indexing and storing all materials connected with separate assembly projects, when not in process, releases work stations for any number of job operations, instead of keeping stations permanently set up for one type of job, explain GD/E production engineers.

File racks, placed in strategic spots throughout the assembly area, now store equipment necessary for as many at 10 operations when not in use. Enough racks have been installed to handle 250 work stations.

The racks contain such equipment as boxes of bulky parts—transformers, chassis, circuit boards; tubes of wires; green bins containing the small nuts, bolts, screws, tiny electronic components; work station tools; harness boards. Parts lists catalogue exactly what is in each bin and all containers are labeled with the job assembly number.

"Using this storage system during change-over of jobs, we can convert our work stations to several different types of job operations," explained J. P. Morris, manager of production engineering.

"We now have 100 free stations that can be devoted to additional work, releasing $100,000 worth of space—a real cost reduction achievement!"

E. M. Starkweather, supervisor of assembly methods and planning, responsible for implementation of the rearrangement, said, "The 'library' system allows us to assign any number of operations to a single station. All job instructions, operation instruction sheets, station layouts, parts bin layouts, are filed with the equipment so that a station can be set up quickly and efficiently in minutes.

"Parts containers can be kept constantly replenished in the storage racks and exchanged for empty ones at any time. Material handling is cut in half by sending the containers right to the stockroom for replacement of parts.

"This cuts down potential damage to material by eliminating the 'middleman' restocking of bins, used heretofore, when parts were brought around to the station for workers to pick out components to refill their containers."

Morris stressed the fact that the present system complies in every respect with military requirements of establishing all electro-mechanical assembly operations and materials for a particular type of work at a single work station throughout performance of the specific job.

Division Value Control Aims Outlined to Navy

(Continued from Page 1)

gram, reorganized in 1961 to include all departments, carries on a continuous schedule of workshop seminars. So far, 550 Convair personnel have learned techniques in full-length seminars and 240 have received short indoctrination courses. (Commander Evans and several other BUWEPS officers are among 18 top ranking Navy personnel who have participated in special customer/supplier seminars.)

In addition, value control coordinators are assigned to all departments with prime responsibility for monitoring value engineering efforts.

Brought out during Williams' presentation was the tremendous response coming in daily from vendor companies in answer to Famme's recent communication urging joint cost reduction effort from subcontractors.

Replies, by presstime, from companies, large and small, throughout the country showed that all are more than anxious to comply in every way possible to control costs and effect savings, meanwhile maintaining quality.

Other discussion centered around Convair's achievements in value engineering Navy programs.

Easter Seals Use OK For Con-Trib

GD/Convair members of the division's Con-Trib-Club may use Easter Seals received during the annual drive of the San Diego County Society for Crippled Children without further contribution, reminds J. K. Field, Con-Trib Committee chairman.

A donation of $3,000 voted to the organization at last week's meeting of the committee allows Con-Trib members to keep and use the Easter Seals without individual donations.

CONVAIR SON 'FLOATING' LENSMAN

W. Gordon Menzie, son of GD/Convair's R. W. Menzie (Dept. 131), was among San Diego people returning home when the University of Seven Seas docked here last month. He is serving as official photographer for the floating school.

DON KIDDER JOINS HEINEMANN STAFF

Edward H. Heinemann, General Dynamics vice president-program development and engineering, announced this week that Donald E. Kidder, former vice president of the Studebaker Corporation's Government Relations Division, has joined his staff in the New York Office.

D. E. Kidder

A Michigan native and graduate of the Edison Institute of Technology, Dearborn, with a B.S. degree in engineering, 1942, Kidder joined the U. S. Navy (submarine service) the same year and served for four years, leaving the service as a lieutenant USNR.

From 1946 to 1951 Kidder was with the Ford Motor Co., latterly as administrative manager, Ford Division, pre-production control department. He served Kaiser Motors Corp. as assistant to the vice president and general manager, 1952-54, and for a year was manager, product planning staff, Chrysler Corp., before becoming a member of the Curtiss-Wright management advisory group to reorganize Studebaker-Packard. He became a Studebaker vice president in 1961.

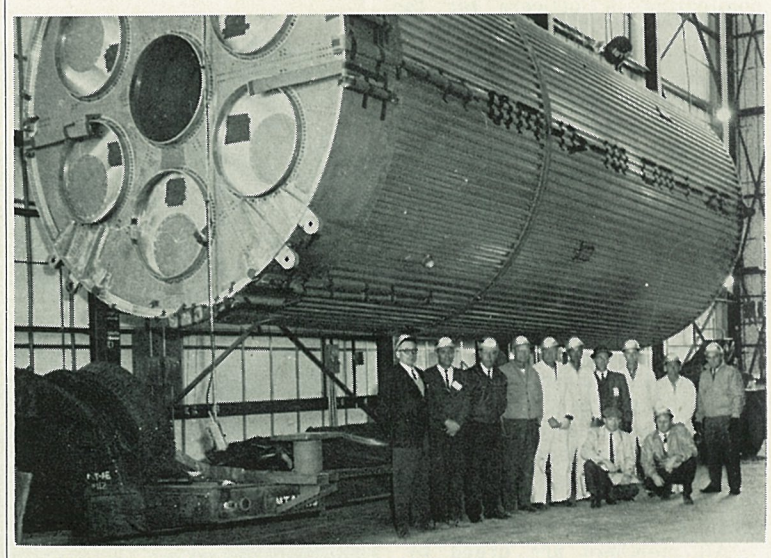
Electronics Wives To Meet at Lunch

A talk on home interior decoration will interest GD/Electronics wives at tomorrow's (March 12) luncheon at Hotel del Charro, La Jolla.

Social hour has been advanced to 11:30 a.m. The 12:30 o'clock luncheon will be followed by a discussion by R. F. Tuggey, interior decorator with Crawford Reynolds Co.

Luncheon price, including tax and tip, is $2.50. Guests are welcome.

For information on reservations call the co-hostesses, Mrs. R. L. Brouillard, phone 273-4006, and Mrs. J. W. Colvin, phone 459-1576.



AT WHITE SANDS — Second Little Joe II launch vehicle delivered by GD/Convair to NASA at White Sands Missile Range, N.M., is shown in hangar. It will be readied for launch of North American boilerplate Apollo spacecraft. Standing, from left, are H. K. Cheney, deputy program manager - launch operations; J. S. Boaz, site administrator; O. L. Todd, F. M. Peterman, D. D. Claxton, D. D. Guest, R. M. Bloom, E. R. Compton, Obid Ray, W. E. Covington; kneeling, P. P. Shepard, A. W. Kellogg.

General Dynamics NEWS

Published by General Dynamics Corporation, One Rockefeller Plaza, New York 20, N. Y.; with editorial headquarters at 3302 Pacific Highway, San Diego 12, Calif., P.O. Box 1950, telephone 296-6611, ext. 1071. Logan Jenkins, editor-in-chief.

Astronautics Editorial Offices, Bldg. 8, GD/Astronautics, Mail Zone 130-01, P.O. Box 1128, San Diego 12, Calif. Telephone 277-8900, ext. 3322. Staff: Bryan Weickersheimmer, editor; Willard Harwood.

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Fort Worth Editorial Offices, between Cols. 71-C and 71-D, Assbly. Bldg., GD/Fort Worth, Mail Zone T-63, P.O. Box 748, Fort Worth 1, Texas. Telephone PErshing 2-4811, ext. 2961. Staff: Dave Lewis, editor; Mary Beck.

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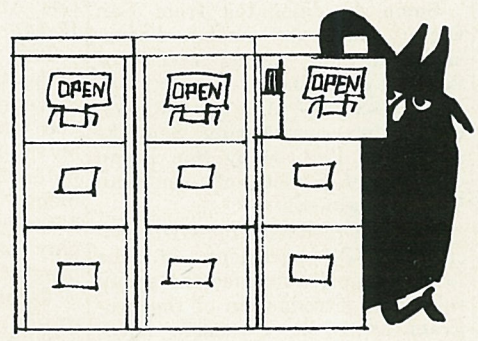
Affiliated editions of General Dynamics NEWS are published in Rochester, N. Y., covering GD/Electronics and Stromberg-Carlson, editorial offices, 100 Carlson Road, HUbbard 2-2200, ext. 2555. Fred E. Voss, editor; and at Groton, Conn., covering GD/Electric Boat, editorial offices at Groton, HIlltop 5-4321, ext. 300 and 513, Joseph Tracey, editor.

how to be a spy

in six easy lessons

1

Join a group and pretend you belong there. Be unobtrusive, or bold, as the occasion demands. Nice guys assume that everyone else is a nice guy and — here's a laugh — won't challenge your "need to know" for fear of hurting your feelings!

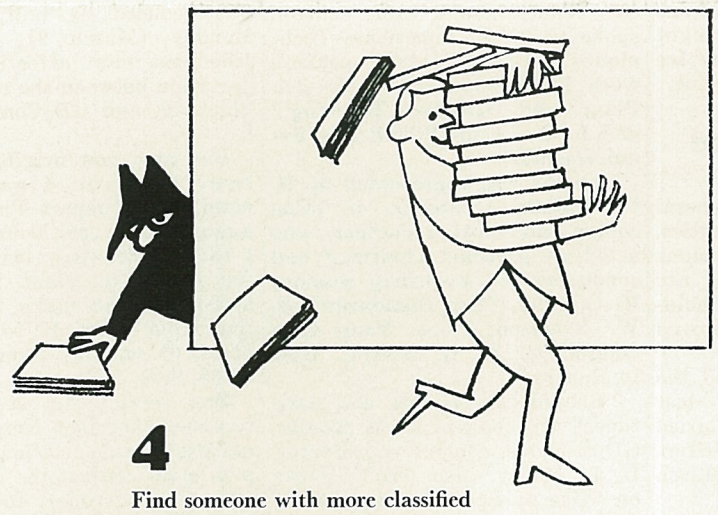


2

Watch for classified material left unattended. Lunch periods and coffee breaks are times of good hunting.

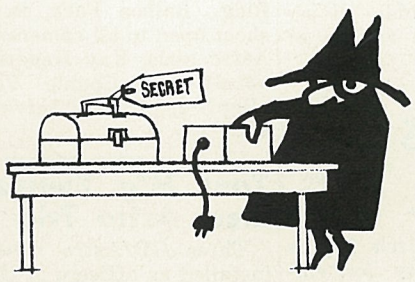
3

Check wastepaper baskets for pay dirt. Scribbled notes and frazzled carbons are just as good as "smooth copy."



4

Find someone with more classified material in his possession than he really needs. This is the pack rat type. He has only a general idea of what he has, so if some of it disappears . . .



5

Remember, not all classified material is printed. A few feet of movie film, a dozen slides can be a bonanza.

6

Keep a sharp eye for classified material that has not been properly logged, because this plays right into your hands. When you snitch it you are home free. You've left no trail, only a dead end.

SNOWY WEEKEND — General Dynamics groups (200 strong) visited Big Bear during February. In addition to ice skating and tobogganing they tried slopes, such as at right where Dee Nunelly and Pearl Weickersheimmer are among novices. At left, Bud Davies, Barbara Gilliland and Bob Smith help feed crowd. Center: relaxing in lobby of Wawona Lodge.

WINTER SPORTS FANS TO WATCH HOCKEY

Big Bear is behind and Los Angeles ahead as ice skaters from all General Dynamics divisions in San Diego continue their winter season of activities.

Some 200 employees and members of their families trekked to Big Bear to one or both of two scheduled "winter weekend" festivities. (The second trip was hastily planned after the initial session was booked solid.)

The Feb. 7-9 and 21-23 trips found skaters enjoying all winter sports (skating, skiing, tobogganing, etc.), plus dancing, pizza parties. The entire Wawona Lodge was filled for each session.

On March 21 ice skaters plan to travel to Los Angeles to witness a Sport Arena match between the Los Angeles Blades and the San Francisco Seals professional ice hockey teams. Tickets selling for $3.50 regularly may now be reserved through March 13 at employee services for $3.25 for the game. No group travel plans are anticipated, although tickets will seat San Diego visitors in the same area of the arena. This is the third and final ice hockey trip planned.

Regular ice skating sessions are held each Thursday night (6:30) at the Mission Valley Ice Arena. All skaters are welcome.

Withholding Chopped Beginning in March

Payroll checks going to General Dynamics people at Astronautics, Convair, and Electronics divisions during current pay periods are reflecting the reduced withholding tax deductions, just approved by Congress.

Hourly employees received the increased take-home pay last Friday (March 6). Flat-salaried employees will notice the difference to the good on their March 13 checks.

Seventy Attend Value Gathering Held By SAVE

Some 70 delegates from San Diego industries heard discussions of the various facets of value engineering by General Dynamics experts at a special one-day Value Engineering Seminar sponsored Feb. 26 by San Diego Chapter of Society of American Value Engineers.

A. S. Freedman of GD/Electronics - SD, president of the local chapter, welcomed the group following introduction of the program by L. R. Swenson, NAS, North Island. F. H. King, with the AF Plant Representative's office at Astronautics, made the first formal talk on "Requirements for Value Engineering."

"Value Engineering in Perspective" was discussed by luncheon speaker, Capt. J. R. Middleton, USN, BUWEPS Fleet Readiness Representative, Pacific.

All other talks were by GD men from Astronautics, Convair, GD/E.

E. D. Heller, Astro manager of cost reduction and value control, spoke on "V.E. Functional Techniques." Other Astro speakers were E. A. Lindem, "V. E. Job Plan," and "Creative Thinking," and L. G. Curtis, "Challenge Requirements."

Convair was represented by H. P. Williams, manager of value control and cost reduction, who acted as program chairman and conducted the workshop session; H. G. Rote, "Use Standards"; S. W. Swenson, "Use Your Own Judgment"; W. G. Martin, "How to Report."

"Roadblocks—Habits and Attitudes" was topic of M. M. Reeder, GD/E value control coordinator. D. L. Macey, also GD/E, spoke on "Use of Specialty Suppliers."

VALUE DISCUSSION — Meeting for exchange of value control reports and progress at four General Dynamics divisions are, from left, M. M. Reeder, GD/Electronics-SD; H. P. Williams, GD/Convair; Harlon Filloon, GD/Pomona; E. D. Heller, GD/Astronautics.

Round-Table Discussion Held On Cost Reduction Guidelines

Value control administrators at four General Dynamics divisions met last week in San Diego to discuss procedures and organization of their cost reduction programs, and how they best could comply with guidelines recently released through the Assistant Secretary of Defense.

E. D. Heller of GD/Astronautics; H. P. Williams, GD/Convair; M. M. Reeder, GD/Electronics - San Diego; and Harlon Filloon of GD/Pomona, all responsible for value control and cost reduction efforts at their respective divisions, were present at the round-table discussion March 3.

Under consideration were such points as definition of value terms used in GD divisions as related to those employed in government documents; individual cost reduction programs; criteria for establishing cost reduction targets; ground rules for reporting savings.

PAPERS WELCOMED FOR UAIDE MEET

A call is out for papers to be presented at the 1964 annual UAIDE (Users of Automatic Information Display Equipment) in Los Angeles this summer, Aug. 12-14.

The UAIDE annual meeting presents the latest advancements in digital display applications and techniques developed for use on the S-C 4020 High Speed Computer Recorder or related equipment. Papers are welcomed in areas of system organization, display hardware, applications and programming.

Three copies of a one-paragraph abstract should be submitted as soon as possible, no later than June 1, to M. Hoffman, program chairman, Dept. 716-61, Atomics International, P.O. Box 309, Canoga Park, Calif.

Current president of UAIDE is H. E. Pietsch of GD/Astronautics.

New Bus Schedules Will Go Into Effect

Bus service between GD/Astro facilities in the San Diego area was reduced by half, effective Monday (March 9), with new schedules now affecting transportation between the main plant, Plant 19, and GD/Convair Plant 1.

Bus runs now originate on the hour, 7 a.m. to 4 p.m., at the main plant; depart Plant 19, 20 minutes after each hour for Plant 1 (8:20, 9:20, etc.); leave Plant 1 for return to Plant 19 on the half-hour; and make the return trip from Plant 19 to the main plant, 35 minutes after the hour (7:35, 8:35, etc.).

Bus service for second shift has been cancelled. Employees requiring transportation after 5 p.m. must contact the dispatcher, ext. 1515, or report in person to transportation office, Bldg. 6, main plant.

Starr of GD/Astro Is Lone GD Winner

Sterling Starr, veteran GD/Astro sailplane pilot, was the only General Dynamics contestant to reach the winners' circle in the 18th annual Midwinter Soaring Championships at Torrey Pines glider port, Feb. 29-March 1.

Starr placed second in overall competition and took the distance trophy for his near 50-mile flight to Cuyamaca with top altitude of nearly 4,700 feet. His altitude record gave him second in that classification.

Meet champion was Ray Proeneke of Gardena, who won the Convair trophy for altitude, and the John J. Montgomery trophy for overall points in bomb drop, altitude, distance, spot landing, and endurance events.

SALVAGE YARD SCHEDULE SET

GD/Convair salvage yard schedule for employee sales this month is March 14 and 28. All GD people are admitted to the Saturday morning sales by identification cards. Hours are from 8 a.m. until noon. Next sales day at the GD/Astro main plant yard is April 4.

Bargain Travel Programs For GD Folk Slated

General Dynamics recreation groups in San Diego, ARA and CRA, have announced a full-scale foreign travel program for 1964 open to all employees and their families.

The program extends throughout the summer months and is made possible through affiliation with the San Diego Industrial Recreation Council. Plans call for travel meetings to be held prior to each scheduled trip, although preliminary information is available through CRA, ext. 1245 at Plant 1, or ARA, ext. 1111, Plant 71.

Leading off will be an 11-day Alaska adventure cruise via the inland passage from Canada, touching at Vancouver, Victoria, Prince Rupert, Ketchikan, Juneau, Skagway and Wrangell. Travel is via air to Vancouver and thence via boat (the SS Prince George). The package, which includes many meals and extras, is available from $399 per person.

There will be three different six-day air trips to the New York World's Fair, departing May 31, July 26 and Aug. 23. Many extras are included in the package deal costing $199 per person. There is also a round-trip air ONLY version on the same departure dates for $145 per person.

On June 15 a 15-day visit to Mexico (seven cities in the tour) is slated. Travel is via jet, prop jet and motor-driven aircraft with stops at Mazatlan, Puerto Vallarta, Guadalajara, Taxco, Acapulco, Cuernavaca and Mexico City. The cost is $295 per person.

A 10-day trip to Hawaii departs July 24 and includes visits to Hawaii, Maui, Molokai and Oahu, plus many package extras. The package is $295 per person.

On Aug. 23 a 16-day jet tour to Hawaii is slated with the package set at $395 per person. It also includes many extras.

Most packages include all accommodations, plus a variety of extras.

Merit Exams Set For Sat.

This Saturday (March 14) is the ONLY opportunity for employees' sons and daughters planning to enter college in 1965 to take the qualifying examination for General Dynamics Merit Scholarships.

San Diego area students in their junior year of high school must arrange now to take the National Merit Scholarship Qualifying Test (NMSQT) by contacting their high school principal's office.

Failure to take the NMSQT on March 14 will bar students from any further hope of qualifying for the General Dynamics Merit Scholarships.

General Dynamics Merit Scholarships are stipends awarded to qualifying sons or daughters of employees on the basis of scholastic achievement. Amount of the award is based on student need.

Three Package Tours Offered

Escorted tours to Jai Alai games in Tijuana, offering three choices of entertainment, have been arranged especially for General Dynamics people the nights of March 27 and 28.

The introductory offer, which allows local people to view the exciting sport with full explanation by experts, has been arranged at reduced prices through coordination of James Hardison, GD/Convair, with Fronton Palace officials.

All three choices include the basic deal ($3.50 a person) of round-trip transportation, Jai Alai admission, one drink, introduction to players.

Second offer at $5.50 each includes, in addition, a regular $3.75 steak or lobster dinner.

Third choice, $7.50, extends the tour to a sightseeing drive, drink at the Foreign Club, admission to the Folies Bergere. Each package price is $2 off regular charge.

All tours leave the SD Zoo parking lot at 5:45 p.m. Friday and Saturday nights and return at 1 a.m.

Reservations must be made by March 20 through CRA office, ext. 1245, Plant 1; ARA, ext. 1111, Astro main plant; or Hardison at his home phone, 276-5805.

'Rifleers' Sponsoring Firearms Program

A "recruiting" meeting for General Dynamics parents and their youngsters who are interested in learning proper use of firearms, will be held by Astro Rifleers (junior rifle club) at 7:30 p.m. today (March 11) in ARA Clubhouse.

Rifleers membership is open to GD/Convair, GD/Astro and GD/E sons or daughters to 18 years of age. Activities include safety and marksmanship instruction competition, and participation in other National Rifle Association functions. Members may purchase ammunition at cost, and have free use of rifles.

Movies "Trigger Happy Harry" and "Shooting Safety" will be shown at the meeting, and NRA literature and information will be distributed.

Both potential Rifleer members and their parents are welcome.

Photographer Wins Honors on Contest

Howard Harvey, Convair lensman, copped two awards in black and white competition, while Aaron Wolgin and Jim Mildice won color honors for advanced photographers and Lee Reese, D. E. Cable and Jay Hudson led beginners in February competition staged by the joint ARA-CRA camera clubs.

On tap for 7:30 p.m. Sunday (March 15) at the Photo Arts Bldg., Balboa Park, is a model shoot open to all cameramen. Two Astro girls, Kay Hendrix (Dept. 521-6) and Connie Varonfakis (Dept. 987-3) will serve as models.

Tool, Mfg. Engineers Elect Astro Trio

Three GD/Astro men will be installed as officers of San Diego chapter, American Society of Tool and Manufacturing Engineers (ASTME) during a meeting at 7 p.m., March 20, Atlas Room, Town and Country Hotel.

To be installed by Ray Gariss, ASTME west coast national director, are C. E. Roye, Dept. 403-3, chairman; G. A. Grossaint, manager of production engineering, third vice president; and Robert DuPort, Dept. 425-3, treasurer.

Old China Dancers Appearing at Russ

General Dynamics folks have an opportunity to see one of the initial U.S. performances of the Sahm-Chun-Li Dancers and Musicians tomorrow (March 12), 8:30 p.m., in Russ Auditorium.

Volleyball Deadline For Teams Mar. 12

Absolute deadline for turning in team rosters for coming volleyball league play is tomorrow (March 12), said Pete Beyrer of CRA.

Ten-man rosters are being accepted from Convair and GD/E departments. CRA pays the $5 per team entrance fee to the IRC league. League play will start the first part of next month.

Call Beyrer at ext. 1245, Plant 1, to list teams.

Coin Club Members Plan St. Pat's Meet

CRA Coin Club members have chosen St. Patrick's Day as theme of their next meeting Thursday (March 19) at 7:30 p.m. in the main Convair cafeteria, Pacific Hwy.

A 1910 Gold Quarter Eagle, with an approximate value of $27, will be raffled. Other entertainment includes an auction, door prize, refreshments.

Officers of the CRA Coin Club attended the Inter-club Council of all San Diego coin clubs to take part in planning for the annual Coinerama this fall.

Present at the Feb. 16 executive meeting in El Cortez Hotel were Pearl Johnson, president of the CRA group; George Stewart, vice president; and F. B. Wagner (GD/E), secretary.

Swissair's 8th 990 Leaves For Zurich

Swissair's eighth 990A Coronado transport left General Dynamics/Convair Feb. 7 for the airline's Switzerland headquarters at Zurich.

Piloted by a Swissair crew, the Convair jet airliner flew non-stop to New York and then across the Atlantic to Switzerland.

It joins Swissair's other 990As flying over the wide-spread network connecting Swiss bases of Zurich and Geneva with all parts of the world — South America, Africa, England, Germany, Sweden, Spain, Portugal, Italy, Egypt, Turkey, Middle East countries, across Asia to Japan, the Philippines and Hong Kong.

When telephoning, never mind the weather. Get to the point. Telephone time costs money.

Tax Deductions Told GD Folk

Medical deductions for 1963 income tax returns, allowed GD/Convair and GD/Electronics employees who carry dependent insurance, are reprinted:

All employees (not represented by EAA)—Jan. 1 through Dec. 31, $2.53 per week.

EAA-represented hourly employees—Jan. 1-Aug. 18, $3.53 per week; Aug. 19-Dec. 31, $2.53 per week.

EAA-represented flat-salaried employees—Jan. 1-Aug. 25-$3.53 per week; Aug. 26-Dec. 31, $2.53 per week.

In addition, all employees earning $4,600 or over may deduct $46 as a tax on both federal and state income tax returns. This amount is one per cent of the first $4,600 in wages paid for disability insurance.

Business Women Hear Astro's W. H. McGaw

W. H. McGaw, GD/Astro advertising and promotion administrator, spoke to San Diego business women members of the San Diego Chapter, American Business Women's Association, on importance of clear-cut communications.

Cecile Hoyle of GD/E, who introduced McGaw at last night's (March 10) meeting in her capacity as program chairman, said that the topic was chosen in line with the organization's goal of promoting better employer-employee relationship.

Meeting was held at Harold's Fifth Ave. Restaurant.

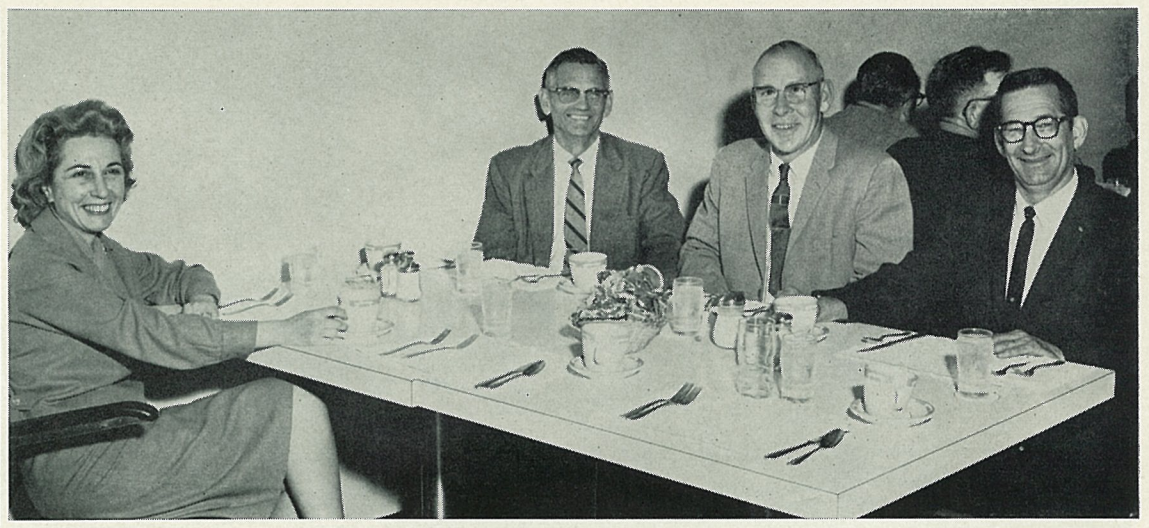
The group now is conducting its annual membership drive, said Mrs. Hoyle, who urges all interested GD women to contact her at ext. 461, Plant 1, for further information.

Some Color Prints Remaining on Sale

There is still a limited supply of colored prints of several General Dynamics planes and missiles available at Convair employee services, Bldg. 32, Plant 1.

Collectors may purchase them at 10 cents each, or a set of 13 different views for $1, as long as they last.

Included are shots of the F-102A, Convair-Liner 440, R4Y Navy Transport, R3Y Tradewind, XFY-1 Pogo, B-36, B-58, Terrier missile.



"TWO-TIMERS"—CRA officers, all re-elected for another term at March 2 election, are, from left, Evelyne Thrall, secretary; Gerry Wright, president; Bob Menzie, vice president; Pete Beyrer, treasurer.

CRA Officers All Re-elected

Entire slate of incumbent officers of the Convair Recreation Association have been re-elected to fill the same posts for another term.

Receiving votes of confidence at the March 2 election were: Gerry Wright, president; Bob Menzie, vice president; Pete Beyrer, treasurer; and Evelyne Thrall, secretary.

Beyrer and Mrs. Thrall are starting their third consecutive terms in their respective positions.

All of the officers directing Convair and GD/Electronics recreational activities are well-recognized leaders in CRA. Wright has headed the Sports Car Club as commissioner since 1956; Menzie has been commissioner of the Fishing Club the last five years and a member since 1949.

Beyrer is most directly connected with the majority of CRA activities as CRA representative, while Mrs. Thrall is CRA accountant.

Installation of the re-elected officers will be held at the April CRA Council meeting, said J. K. Field, manager of personnel services, who directs the administration of division recreational activities.

Club Featured In Magazine

CRA Road Runners were highlighted as "Club of the Month" in the March issue of the national trailer publication, Trailer Life, published in Los Angeles as the official magazine of Travel Trailer Clubs of America, Inc.

A two-page spread, illustrated with several photos, described the Convair club's activities and organization. The article was based on material supplied by Ruth Peterson, publicity chairman for 1963.

Commissioner Ralph East said that the honor came at a particularly opportune time, since the Road Runners are observing their fourth anniversary this month.

Carrying on their traditional anniversary celebration, Road Runners will join the Douglas Jetliners this weekend March 13-15 at Barrett Lake Park.

Next regular meeting will be March 19, 7:30 p.m., at Gillespie Field Clubhouse.

Horsemen to Join In Annual Parade

CRA horsemen will journey to San Juan Capistrano to take part in the Saturday (March 21) annual parade.

All Convair and GD/E riders are invited to join in the weekend activities, said Commissioner Tommy Thomason. A campout will be held Saturday night and a trail ride the next day.

Those wishing to join the CRA outing are urged to contact Thomason at his home phone, 232-0153, after 8 p.m., or Luke Barbour at home, 466-6536.

Thomason, Barbour, and Roy Sims represented the Convair Riding Club in the Imperial County Fair parade on Saturday, Feb. 29.

Sports & Recreation

PLANT CHAMPIONS — Team members of GD/E Material, undefeated in both first and second rounds of CRA plant "slow break" basketball play, displaying individual trophies at Feb. 27 awards banquet are (standing) from left: Tom Morris, manager, Mike Peterson, Ken Farnsworth, Bill Bullock, Bill Creamer, Don Dvorak, Huey Crawford, Les Phillips; (kneeling) Les O'Neal, Norman Dahl, Curt James. GD/E team is now competing in Minor A post-season City League tourney.

CRA Calendar

(Convair Recreation Association has some 30 activities in operation for Convair and Electronics people. For information call CRA Headquarters, ext. 1245, Plant 1.)

★ ★ ★

AEROMODELERS — Flying sessions Saturday and Sunday mornings, 8 a.m. to 1 p.m., Clairemont Mesa Flying Site.

BOWLING — Entries open for annual CRA plant championship tourney, May 9-10, 16-17, Pacific Rec. Forms at CRA office, Bldg. 32, Plant 1, and bowling alleys used by CRA leagues.

BRIDGE CLUB — Play open to all General Dynamics people each Wednesday evening, 7:30 p.m., Convair executive dining room, Pacific Hwy. Master points night March 18.

CAMERA CLUB — Joint CRA-ARA meeting March 15, 7:30 p.m., Photo Arts Bldg., Balboa Park. Model shoot.

COIN CLUB — Meeting March 19, 7:30 p.m., main Convair cafeteria, Pacific Hwy.

FENCING — Workouts and instruction each Friday night, 7-10 p.m., YWCA, 10th & C Sts.

FISHING CLUB — Meeting March 17, Gillespie Field Clubhouse. Potluck dinner at 6:30 p.m., meeting, 7:30.

GLIDER CLUB — Meetings every second Saturday, 8 p.m., Golden Hills Playground Recreation Hall, 28th & A Sts. Call Don Larsen, ext. 2470, Plant 1, for information.

GOLF — CRA tournament March 14-15 at Carlton Oaks course.

ICE SKATING — Thursday ice skating sessions, Mission Valley Ice Plaza, 6:30-8 p.m.

MODEL RAILROAD — Work nights, Fridays, 7:30 p.m.; open sessions, Sundays, 1-4:30 p.m., House of Charm, Balboa Park.

MOVIES — Reduced prices for General Dynamics people at State Theater, Euclid and El Cajon Blvd. General admission: adults 75¢; children, 25¢.

PISTOL CLUB — CRA club shoot March 22, 9:15 a.m., San Diego Police Pistol Range, Federal Blvd. and Home Ave.

RADIO CLUB — Next meeting Thursday (March 19), 8 p.m., Harbor Drive club headquarters.

RIDING CLUB — San Juan Capistrano parade and campout March 21-22.

ROAD RUNNERS — Outing with Douglas Jetliners at Barrett Lake Trailer Park March 13-15. Regular meeting March 19, 7:30 p.m., Gillespie Field Clubhouse.

ROCKHOUNDS — Meeting March 12, 7:30 p.m., Gillespie Field Clubhouse. Lapidary workshop open Wednesday evenings, 7-9 p.m.

SOLO FLYERS — Registration open for new ground school course. Call Don Larsen, ext. 2470, Plant 1.

ROLLER SKATING — Free skate night March 16, Skateland, Front and G Sts. Tickets at Convair employee services.

SWIMMING — Family swim night March 21, Mission Beach Plunge, 7-9 p.m. Tickets at Convair employee services.

VOLLEYBALL — Last chance to enter team rosters for IRC league play. Call Pete Beyrer, ext. 1245, Plant 1, by tomorrow (March 12).

WATER SKI CLUB — Skiing weekends on Mission Bay on phone-call basis. Call Gene Sevigny, ext. 2701, Plant 1.

Year-End Con-Trib-Club Report:

General Dynamics/Convair Employees Con-Trib-Club Charity Fund

Statement of Financial Condition
September 30, 1963

ASSETS

Total Assets—Cash in bank	$ 21,680.31

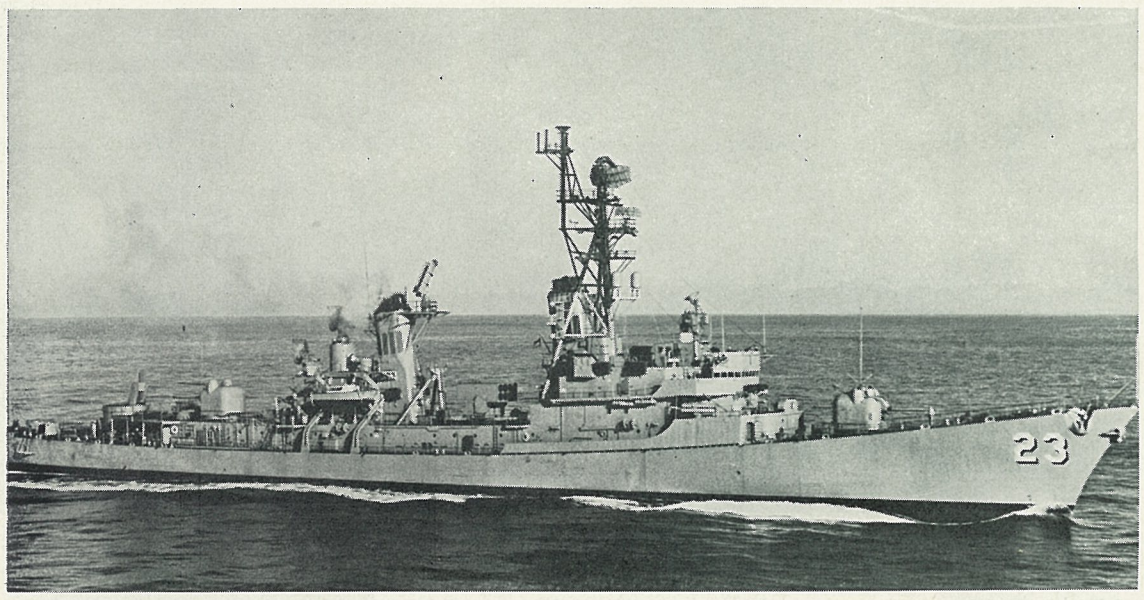
LIABILITIES AND SURPLUS FUND

Account Payable—Emergency Aid Fund	$ 995.92
Surplus Fund	20,684.39
Total liabilities and surplus fund	$ 21,680.31

RECEIPTS AND DISBURSEMENTS

October 1, 1962 to September 30, 1963

Total Receipts		$118,719.54
Disbursements		
American Cancer Society	$ 3,000.00	
Arthritis and Rheumatism Foundation	500.00	
Big Brothers—San Diego County	1,000.00	
Children's Dental Health Association	500.00	
City of Hope—Duarte	500.00	
City Rescue Mission	500.00	
Crossroads Foundation	500.00	
Family Service Association—Homemakers	700.00	
Family Service Association—Foothills	300.00	
Family Service Association—Imperial Beach	250.00	
Family Service Association—San Dieguito	250.00	
Girl Scouts Council—San Diego County	500.00	
Jewish Community Center	125.00	
John Tracy Clinic	250.00	
Muscular Dystrophy Association of America	500.00	
National Cystic Fibrosis Research Foundation—San Diego County	750.00	
Paradise Valley Hospital	5,000.00	
Pathfinders—San Diego County	500.00	
Salvation Army	800.00	
San Diego County of Churches—Senior Citizens	500.00	
San Diego County Association for Retarded Children	2,000.00	
San Diego County Heart Association	2,000.00	
San Diego County Multiple Sclerosis Society	500.00	
San Diego Mental Health Association	500.00	
San Diego Society for Crippled Children	2,000.00	
Sunnyside Guild	750.00	
United Jewish Federation	500.00	
United Fund—Othero County	1,000.00	
United Fund—San Diego County	90,000.00	
Vauclain Home	800.00	
Volunteers of America	500.00	
Y.M.C.A.	1,000.00	
Y.W.C.A.	500.00	
Total charitable contributions	$118,975.00	
Transfers to Emergency Aid Fund	12,100.44	
Accounting and audit expense	850.00	
Total disbursements		131,925.44
Excess — Disbursements over receipts		$ 13,205.90



JOINS FLEET — USS Richard E. Byrd (DDG-23) joined fleet following commissioning ceremonies at Puget Sound Naval Shipyard recently. The 4,500-ton ship, named for famed polar explorer, is armed with GD/Pomona-built Tartar surface-to-air missiles.

GD/E-SD Briefs ASW Admiral On New Radars

Rear Admiral C. A. Karaberis, USN, Commander, Anti-Submarine Warfare Group One, and members of his staff were briefed on General Dynamics/Electronics-San Diego programs on a visit Feb. 18 when they flew into the San Diego facility from their USS Kearsarge headquarters.

Included in the briefings, which included one on a GD/Convair project, were radar developments especially applicable to anti-submarine warfare, explained John N. MacInnes, GD/E requirements engineer-Navy, who coordinated the visit.

The Naval officers heard presentations on GD/E's Aircraft Station Keeper Radar by J. B. Gehman, engineering staff specialist; Terrain Following Radar by R. F. Schillinger, project engineer; A-NEW project by J. H. Redman, manager of military requirements-data products; Short Pulse Radar, R. R. Apgar, project engineer.

R. H. Oversmith, chief ASW-marine sciences, made the Convair presentation.

In addition, the group saw a laboratory demonstration of GD/E products, including the new Hand-Held Radar by R. W. Jackman.

Accompanying Rear Admiral Karaberis were Capt. L. R. Yarnell, Cdr. L. F. Bogan, Cdr. H. L. Milhan, staff operations officers, and Lt. B. J. Adams, flag lieutenant. Rear Admiral Karaberis is due to be transferred soon to Washington, D. C., where he will be head of Aviation Plans Division in the Office of Chief of Naval Operations.

GD/E DEMONSTRATION — RAdm. C. A. Karaberis is shown newly-developed GD/Electronics-SD radar by R. R. Apgar during recent visit to San Diego division.

'POGO' TO APPEAR ON CBS TELECAST

"Twentieth Century" telecast by CBS on Sunday, March 22, will include shots of the GD/Convair XFY-1 Pogo as the development of vertical takeoff and landing aircraft is traced in the episode titled "Upjet."

Tartar-Armed Ship Selected For Multi-Nation Experiment

Tartar-armed USS Biddle (DDG-5) was assigned last month by Secretary of Defense Robert S. McNamara to a unique multi-national experiment to which six other NATO countries will contribute crewmen.

President Johnson approved the guided-missile destroyer experiment scheduled to start within six months.

In addition to GD/Pomona-built Tartar surface-to-air guided missiles, Biddle is armed with the anti-submarine rocket Asroc.

The United States will furnish 50 per cent of the crew for the 18-month test of mixed manning of a warship — forerunner of a possible NATO force of Polaris missile launching surface ships.

Also providing officers and men for the 334-man crew will be West Germany, Britain, Greece, Italy, Netherlands and Turkey. None will be allowed more than 20 per cent.

The ship, under U. S. command, will serve with Second Fleet in the Atlantic and Sixth Fleet in the Mediterranean.

Commissioned at Philadelphia Naval Base on May 5, 1962, Biddle has an overall length of 437 feet, a beam of 47 feet and a displacement of 4,500 tons. The ship is equipped with the most modern communications and electronics installations and is capable of detecting, tracking and delivering rapid salvos of missiles and projectiles against enemy targets in the air, on the sea, under the sea, or on land.

I. B. Hale Panelist At Police Meeting

I. B. Hale, FW manager of industrial security, served as a workshop panelist at the 70th Annual Conference, International Association of Chiefs of Police, in Houston recently.

Hale's presentation, "Cooperative Efforts of Police and Industrial Security Officers," was published in the January issue of "Industrial Security," official publication of the American Society for Industrial Security.

GD COORDINATOR PRESENTS PAPER

D. L. Platt, GD/Astro program PERT coordinator, presented a special paper last week (March 5) before the National SHARE meeting staged in San Francisco. His paper was "Organization Implications of Resources Allocation—as It Relates to the PERT/Cost Management System."

Radio Hams Link Father, Daughter

ARA Amateur Radio Club equipment served as link between a GD/Astro father and his Peace Corps daughter half a world away, last month.

Using the club station (W6-UUS) in ARA Clubhouse, ARA Commissioner Ed Carson (W6-VNM) and Jay Ereneta (W6-VOM) established radio contact with Ereneta's daughter, Roselyn, a former GD/Astro employee now serving with the Peace Corps on Cebu, Philippine Islands.

Contact with Roselyn was made through a Filipino "ham" operator (DU7SV) in Cebu City. Both Carson and Ereneta are in GD/Astro Dept. 780.

Distinguished Executives Join Board

(Continued from Page 1)

Co. of Canada, Ltd., Pullman Co. and Mead Johnson & Co. Since 1949, he has served as a trustee of Hamilton College, from which he received an A. B. degree in 1921.

* * *

Packard is president of Hewlett-Packard Co. of which he was a co-founder in 1938.

Born in Pueblo, Colo., in 1912, he attended Stanford University, receiving an A. B. degree in 1934 and a degree in Electrical Engineering in 1939. After completing an advanced course in engineering at Colorado University in 1936, he worked for General Electric Co. in Schenectady, N. Y., for two years before starting his own company.

Packard is also a director of the Pacific Gas and Electric Co., Crocker-Anglo National Bank, Stanford Research Institute and the Committee for Economic Development. He is a member of the Business Council and the board of trustees of Stanford University, having served as chairman of the board from 1958 to 1960.

The author of several articles as well as the holder of several patents in the field of electronics and measurements, Packard is a member of the American Institute of Electrical Engineers and a fellow of the Institute of Radio Engineers.

Convair Engineers To Present Papers

Four papers, based on recent oceanographic studies at GD/Convair, will be presented by Convair engineers at the International Buoy Technology Symposium sponsored by the Marine Technology Society in Washington, D. C., March 24-25.

Robert Devereux and K. A. Morgan will join in giving their paper on "Recent Experiments in Ionospheric Radio Telemetry."

S. T. Uyeda's paper is titled, "Buoy Configuration Resulting from Model and Computer Studies." F. M. Garth will present "An Initial Look at Oceanographic Buoy System Requirements"; W. R. Hoover, "Evaluation of an Electric Power Source for Oceanographic Buoys."

Orbiting Observatory 'Big' Project at Astro

The "big" project at GD/Astronautics' Point Loma Test Site at San Diego these days is OAO, the Atlas-launched Orbiting Astronomical Observatory under development for National Aeronautics and Space Administration.

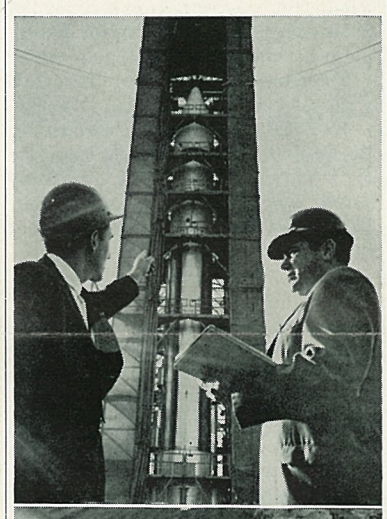
And big it is!

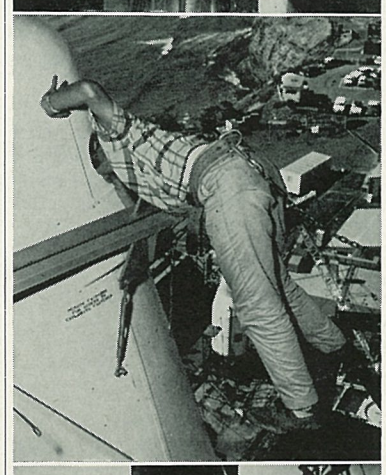
A complete "stack"—Atlas, Agena B and payload with fairings and nose cone—fills Point Loma's recently-heightened static testing "A" Tower with little room to spare.

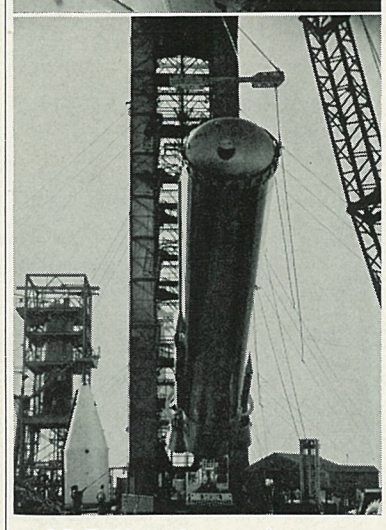
Looking at the stack from bottom up, there is Atlas in a constant 10-foot diameter (no nose taper) configuration like that used for Centaur. Next comes an adapter to accept the Lockheed-built Agena B second stage, both concealed in fairings; and atop this, the OAO payload (built by Grumman) enclosed in a three-story fiber glass nose from GD/Fort Worth.

At Point Loma for a series of tests under direction of Fred Wallace of GD/Astro's systems test labs (Dept. 565-1), OAO units are installed in both "A" Tower and nearby "C" Tower, where work is coordinated by Group Engineers H. W. Wegener and R. C. Hinck, respectively.

J. H. Derango is lead engineer at "A" Tower, assisted by J. D. Jones, R. H. Read and P. C. Adams. One test phase in this facility is complete and a second series is about to begin.







SO TALL — In top photo, completed "stack" of Atlas, adapters and Agena, plus OAO mockup inside nose cone, is viewed between Dick Read, left, GD/Astro engineer, and Jack Miller, Dept. 756, "A" Tower assistant foreman. Center: Engineer Phil Adams peers through inspection port of OAO nose cone atop tower at Point Loma Test Site. Below: Special Atlas is suspended by cranes during erection at test site.

The first tests were a "match-mate" series, designed to verify compatability of components supplied by GD/Astro, Lockheed and Grumman. For this purpose, a payload mockup with nose cone, "dummy" Agena with enclosing fairings, and the interstage adapter were installed together in "A" Tower.

The test phase was completed with little difficulty and these units were removed. Then Atlas—the actual vehicle to be used for launch—was swung cautiously into place, and the "stack" was rebuilt with the original units hoisted atop the booster.

This array will be used in a second phase of "A" Tower testing which will begin shortly.

For this series (free-free vibration tests), Atlas' outboard (booster) engines have been removed and replaced by units which now rest on two specially developed devices.

During testing these devices will actually "float" the bird (with its LOX and fuel tanks filled with de-ionized water to duplicate tanked weight). Pneumatic units attached to damping weights at three points on the booster and payload will induce vibrations at various frequencies for "shake testing" under direction of components test lab (Dept. 564-1).

Test data on the vehicles' performance will be relayed via accelerometers strategically mounted throughout the stack.

Perhaps most dramatic of the "A" Tower tasks was erection of the Atlas. Both a 45-ton crane with 110-foot boom and a 20-ton crane were used to swing the launch vehicle into place.

It was a tight fit. Once swung up vertically on the big crane, Atlas was rotated to squeeze its thrust section into the tower. Even then, there was less than two-inch clearance on each side!

Other units of the stack were pulled up by the stand's five-ton hoist.

Meanwhile, engineers W. C. Fogg, C. L. Holmes, A. B. Carlson and Carl Conaway had been preparing for other tests in "C" Tower. A series here will involve studies of stress.

Test articles for these tests are an Atlas stub tank mounted on a two-inch thick steel plate (**General Dynamics NEWS**, Aug. 21, 1963), with an Agena and OAO mockup positioned atop it. A cable and hydraulic ram system will be used to apply forces equal to those expected during flight.

Instrumentation work for all Point Loma was handled by GD/Astro electrical systems test labs, and personnel under Frank M. Urban, assistant test lab group engineer, with Richard N. Franklin, lead engineer.

At "A" Tower were instrumentation engineers C. W. Gardner, D. R. Kelley and F. F. Koehl, with R. L. Ellis and E. G. Denson working at "C" Tower.

All Point Loma operations fall under cognizance of Site Manager Carl Rother.

To carry out their tests, the engineers rely on GD/Astro's engineering test support (Dept. 756) with C. W. Graser, assistant general foreman, in charge at Point Loma. J. H. Miller and L. H. Green are assistant foremen at "A" and "C" Towers respectively.

The OAO test program swung into action early last year when both "A" and "C" Towers were heightened to accommodate the OAO stack.

The 3,600-pound OAO payload is designed to make telescopic observations in the ultra-violet, and X-ray range, from a precisely orbiting platform above the obscuring effects of the earth's atmosphere.

It will be launched from Cape Kennedy's busy Complex 12, which is launch site for the Ranger series, and will also be used for NASA Mariner Mars fly-by missions, and for OGO (Orbiting Geophysical Observatory) satellite launches.

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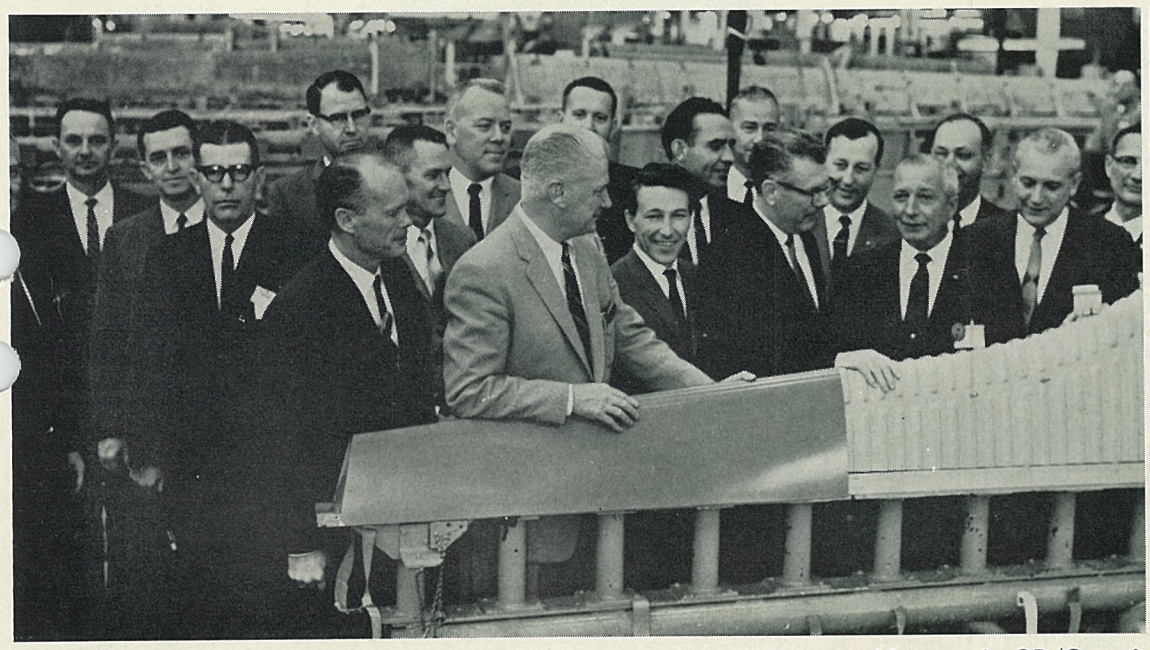
GD

SAN DIEGO EDITION
(Serving GD/CONVAIR
and GD/ELECTRONICS)

GENERAL DYNAMICS NEWS

Vol. 17, No. 7 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, March 25, 1964



SPARES SURVEY — Sixteen-man ATA team looks over spare parts assembly area in GD/Convair Bldg. 5 during two-day review this month. Standing at Convair-Liner dorsal leading edge on fixture are (from left) GD/Convair's Clarence Strand, F. H. McLaughlin, G. M. Schmidt of Lufthansa German Airlines, C. M. Mathews of Braniff International Airways, John Doig, chief of service parts, H. E. Brown, ATA secretary.

Convair Spares Cycle Shown To Customers

An Air Transport Association Value Analysis Team, representing 11 domestic and foreign operators of Convair transports, expressed satisfaction with GD/Convair spare parts operations during a March 10-11 review.

Under survey during the two days was GD/Convair's system of controlling, handling, and packaging of spare parts for the various model Convair airliners in operation all over the world.

Division President J. H. Famme assured the 16-man team of the company's continued spare parts support in the years to come during his welcoming address.

(Continued on Page 2)

Speedy Spares Service Praised By TWA as 880 Back in Service

GD/Convair service parts received kudos from Trans World Airlines recently for the superb job of supplying over 1,300 spare parts in record time to put a crippled Convair 880 transport back into service.

The TWA 880, extensively damaged in an accident Jan. 1 at Boston, was completely repaired and back on its routes by Feb. 13—an outstanding achievement, according to TWA Vice President J. A. Shaunty.

Shaunty was at GD/Convair March 13 to honor service parts and all GD/Convair people who participated in the effort.

In his words, not one minute was lost waiting for parts!

As he presented John Doig, chief of service parts, a special plaque to mark the outstanding spare parts performance (only the second of its kind to go to a TWA supplier) he said, "I want to congratulate you and your spare parts department on a truly outstanding performance in supplying the over 1,300 items necessary in the extensive repair.

"Not one productive hour was lost due to a shortage of parts. This is of particular significance in view of the fact that no such airplanes are in current production and is a great tribute to the 'will to do' which we have long recognized as a most valued quality of your organization."

Doig pointed out that only the utmost cooperation of all functions involved made the feat possible. Besides service parts, engineering, tooling, factory, inspection, he especially mentioned Frank Field's shipping department which kept the parts moving out of the San Diego plant as smoothly and quickly as possible.

REWARDED — TWA Vice President J. A. Shaunty (top photo) presents special plaque to John Doig, GD/Convair chief of service parts, representing Convair functions involved in all-out effort to get damaged 880 transport back into service pronto. Admiring memento is Division President J. H. Famme. Part of personnel assigned to project, looking on, are (from left) W. T. Elliott, L. L. Stabenau, C. E. Rice, T. L. Heid, D. H. Digges, Alex Rinaldi, L. N. Kenyon, Jack Yonke, Larry Hayes.

NOTICE!

You have been receiving General Dynamics NEWS by mail as a courtesy.

If you wish this service continued please send a letter to this effect, with name and correct address, to: GD/NEWS, Box 1950, San Diego 12, Calif.

GD/E Installs Paint Facility

A new paint facility is going into initial operation for General Dynamics/Electronics-San Diego to expedite exterior processing of all GD/E products fabricated at both Plant 1 and 2.

The full paint shop, located in Bldg. 4 manufacturing section at Plant 1, is equipped for all processes necessary to meet the high dust-free requirements for electronic assemblies and components. In addition to standard painting, it can provide a number of plating and metal finishing processes, such as cadium plating, alodining. dry film lubrication, which formerly had to be subcontracted to outside firms.

(Continued on Page 2)

Five Awarded MacSave-its

MacSave-it awards were handed out March 17 to five GD/Convair cost-conscious individuals who had submitted top Cost Improvement Proposals over the last four months.

The four men and one woman who received the awards at this month's Convair Management Club meeting totaled over $85,000 in savings to the division through their suggestions, and one at least is already qualified for the President's Award for this year.

Bertha G. Wilson, buyer in Dept. 34-2, was MacSave-it award winner for February with her CIP which saved Convair $44,666 in costs of skin material for C-141 empennages. Working with engineering, Mrs. Wilson was able to get a change in specifications allowing for purchase of pre-cut material which eliminated costly skin mill operations. There is every indication that her CIP will be reopened for review of further savings.

January's top saver was Duane Q. Henry, assistant supervisor in graphic reproduction, who saved $15,230 by suggesting a better and less expensive method of reproducing T. O. packages.

Al Vernon, timekeeping general supervisor, had two CIPs to his credit to win the December MacSave-it. One, which saved $597 and 208 manhours, eliminated a special stamp used on clock cards when employees fail to punch in or out; the second, with a savings of $8,065, installed a new method of reporting daily attendance irregularities to eliminate a form.

H. A. Mohr and Howard Woodard of Dept. 101, perennial CIP submitters, shared the November award for their suggestion which will save $16,816. Their CIP called for adding punches in blank dies to punch all holes that have been previously drilled, punched, or pierced and doing the punching in one operation by their blanking method.

W. R. Holmes Transfers To Electric Boat

W. R. Holmes, who had headed the standards laboratories at GD/Convair for over five years, transferred this week to Electric Boat division. He has accepted the post of staff engineer in the standards lab of the research and development department.

Holmes, a native of Millville, Fla., joined Convair division in 1958 as senior design engineer and was test group engineer in reliability and quality control until his transfer.

He also was active in the San Diego Section of the Instrument Society of America, serving as president for the current year.

TOP MONEY-SAVER WILL BE HONORED AT CLUB MEETING

One of five leading money-savers at General Dynamics/Convair will be tabbed winner of the division's highest cost reduction honor, President's Award for 1963, at the April 15 Management Club meeting.

Five men are eligible for the award. All have qualified by their approved Cost Improvement Proposals totaling savings well over the necessary minimum of $25,000.

Candidates are: H. A. Mohr (Dept. 101), $139,879; H. M. Woodard (Dept. 101), $139,879; E. V. Torp (Dept. 91), $250,634; K. K. Versekes (Dept. 93), $27,399; K. W. Wulfemeyer (Dept. 3), $118,850.

President J. H. Famme will announce the winner and make the presentation of the plaque bearing the individual's name. In addition, the award winner will receive a $250 merchandise gift of his choice and have his name engraved on a perpetual plaque.

Mgt. Club Will Hold Key Meeting of Year

Most important meeting of the year for GD/Convair Management Club has been set for April 15 in the U.S. Grant Hotel's Palm Room.

Highlights will be presentation of the 1963 President's Award by Division President J. H. Famme, and disclosure of the Mug of the Year.

Newly-elected club officers will be introduced to members and their ladies, who are invited. MacSave-it award for the month and special entertainment also is on the program, reports Robert Macomber, general chairman for sponsoring controller's department.

Tickets are now on sale at all usual plant outlets at $2 each.

TOP SAVERS — Bertha Wilson, GD/Convair buyer, is congratulated for impressive CIP savings of near $45,000 by H. P. Williams, manager of value control, as he presented her February MacSave-it award at recent Management Club meet. Other MacSave-its went to, from left, Al Vernon (Dept. 93-6), December winner; Duane Q. Henry (Dept. 16-6), January; Howard Woodard and H. A. Mohr, both Dept. 101, November winners for joint CIP.

Log Book Entries

GD/Convair's Emmett L. Williams, Dept. 131, completed 25 years service early this month.

Service Emblems

CONVAIR

Service emblems due during the period March 16 through March 31.

Thirty-year: Dept. 102, Alfred Stierinager.

Twenty-five-year: Dept. 6-22, Andrew Minella Jr.

Twenty-year: Dept. 25-9, Irene M. Gunderson; Dept. 42-1, E. B. Aus; Dept. 131, F. J. Hudec.

Fifteen-year: Dept. 14-3, W. M. Warren; Dept. 25-2, A. F. Gross.

Ten-year: Dept. 4-0, M. E. Ward; Dept. 6, Earl Fisher, Mary L. Mitchell, J. M. Olson; Dept. 16-1, Grace C. Simpson; Dept. 27, W. B. Strong, Mary M. Thorp; Dept. 93-3, Alta C. Eckelberry; Dept. 171, M. C. Lindsay.

ELECTRONICS

Twenty-year: Dept. 41-20, T. B. Woodruff.

Fifteen-year: Dept. 22-00, Marcina W. Ward.

Ten-year: Dept. 71-00, R. L. Picard.

Papers Presented

CONVAIR

Presenting papers at International Buoy Technology Symposium of Marine Technology Society, Washington, D.C., March 24-25, are: GARTH—F. M., "An Initial Look at Oceanographic Buoy System Requirements"; HOOVER—W. R., "Evaluation of an Electric Power Source for Oceanographic Buoys"; MORGAN—K. A. and DEVEREUX—Robert, "Recent Experiments in Ionospheric Radio Telemetry"; UYEDA—S. T., "Buoy Configuration Resulting from Model and Computer Studies."

Awards

CONVAIR

Employee Suggestion awards approved for periods March 6 and March 13.

Dept. 15, N. D. Jones, $45.12.

Dept. 27-6, S. C. Dormier, $20.

Dept. 91, W. McColley, $15.

Dept. 101, S. Boyd and B. T. Robinson, joint award, $10 each; C. V. Beeson and M. Chakarun, joint award, $5 each.

Dept. 115, C. W. Haffly, $40.

Dept. 131, K. R. Abbott and W. E. Ritter, joint award, $5 each.

Dept. 141, M. M. Doerr, $15; R. F. Friar and H. G. Rexroad, seven joint awards, $36.95 each.

Dept. 171, D. W. Kennedy, two awards, $22.90; W. J. Gibson and H. C. Killgore, joint award, $77 each.

Cost Improvement Proposals approved for the same periods.

Dept. 16, R. D. Johnson.

Dept. 41, R. L. Howard.

Dept. 101, G. K. Cox; H. A. Mohr and H. M. Woodard, joint proposal.

Dept. 131, W. M. Clapp.

Personals

CONVAIR

My most sincere thanks for the thoughtfulness and sympathy expressed by our many Convair and Astro friends at the passing of my beloved wife, Ona Mae Carroll.

Arnold W. Carroll, Astro Dept. 141-2

* * *

I wish to extend my sincere and heartfelt appreciation to my many Convair friends, particularly those in the shop order group and Dept. 131 for the cards, prayers and phone calls received during my hospitalization. I am now on the slow road to recovery.

Gertrude Christian, formerly Dept. 6-100.

* * *

I wish to express my thanks for the expressions of comfort which were received from Convair employees at the death of my husband, Eddie Vaile, Dept. 44-5. His 23 years at Convair were the happiest of his life because he found so many wonderful friends there. Thank you for being his friends and for remembering.

Alma (Jo) Vaile.

Retirements

CONVAIR

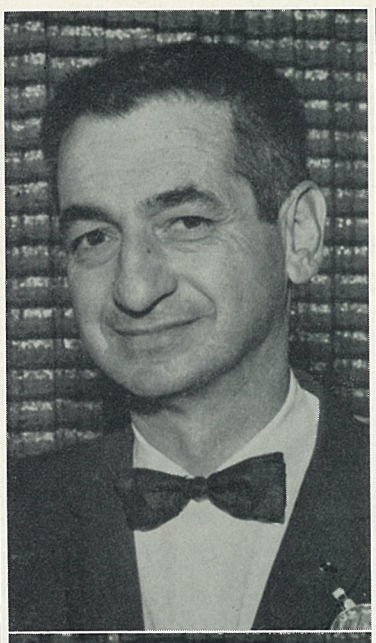
AQUIRRE — Aurelio C., Dept. 140. Seniority date Dec. 18, 1946, retirement effective March 3.

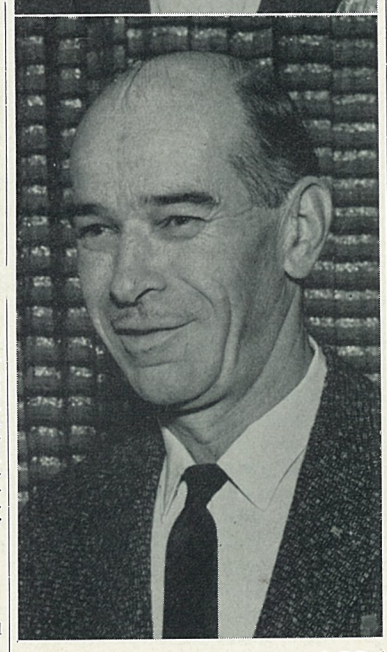
BARRETT — Natalia M., Dept. 101. Seniority date Feb. 2, 1951, retirement effective Jan. 26.

CLONTS — Henry F., Dept. 27-6. Seniority date April 17, 1952, retirement effective Jan. 30.

DENNIS — Stella R., Dept. 401-7. Seniority date Nov. 6, 1950, retirement effective Feb. 27.

SWARSTAD—Anthony B., Dept. 14-4. Seniority date Nov. 30, 1950, retirement effective March 13.





Rounding out 30-years of GD/Convair service this month are veterans Fred A. Rosso, Dept. 14-4, top photo, and Alfred Stieringer, Dept. 102.

Tool Store Moved To Bldg. 10 Office

Employees' tool store at GD/Convair Plant 1 was relocated this week in Bldg. 10. It formerly was across from employee services in Bldg. 32.

Entrance is directly across from transportation operations building and next to transportation foreman's office.

Operated by the Western Metal Supply Co., the tool store carries a supply of hand tools, including some electrical tools, engineering supplies, miscellaneous items such as thermos bottles, refills, ballpoint pens, scissors, tape measures.

Cora Wiggins and Cleta Woodson are in charge of sales. Store hours are from 7:30 a.m. until 4 p.m. during weekdays.

WAINWRIGHT GETS SPECIAL ASSIGNMENT

James Wainwright, manager of structural design at GD/Convair, is now on special assignment, reporting to James Adamson, director of design and development, C. W. Frick, vice president-engineering, announced. Wainwright's duties are being assumed by John Bergstrom.

Births

CONVAIR

GALLOWAY—Son, Stanley Martin, 9 lbs., 4½ oz., born Feb. 27 to Mr. and Mrs. Dave J. Galloway, Dept. 115.

General Dynamics NEWS

Published by General Dynamics Corporation, One Rockefeller Plaza, New York 20, N. Y.; with editorial headquarters at 3302 Pacific Highway, San Diego 12, Calif., P.O. Box 1950, telephone 296-6611, ext. 1071. Logan Jenkins, editor-in-chief.

Astronautics Editorial Offices, Bldg. 8, GD/Astronautics, Mail Zone 130-01, P.O. Box 1128, San Diego 12, Calif. Telephone 277-8900, ext. 3322. Staff: Bryan Weickersheimmer, editor; Willard Harwood.

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Affiliated editions of General Dynamics NEWS are published in Rochester, N. Y., covering GD/Electronics and Stromberg-Carlson, editorial offices, 100 Carlson Road, HUbbard 2-2200, ext. 2555. Fred E. Voss, editor; and at Groton, Conn., covering GD/Electric Boat, editorial offices at Groton, HIlltop 5-4321, ext. 300 and 513, Joseph Tracey, editor.

NASA Reviews Fin Control on Little Joe II

A group of NASA officials were at GD/Convair late last month for an informal review of the fin installation on the first Little Joe II attitude control vehicle.

The movable fins and reaction control subsystems are now installed on the initial vehicle to be equipped with the attitude control system which will direct the vehicle in flight.

Purpose of the recent NASA visit was for coordination during early stages of installation.

At the GD/Convair plant were J. W. Akkerman, J. W. Conlon, O. P. Littleton, W. W. Petynia, Manned Spacecraft Center, Houston, Texas; B. J. McCarty, MSC, Apollo Spacecraft Project Office; Earl Smith, Resident Apollo Spacecraft Office at North American's Downey, Calif., facility; Oscar Tarango of White Sands Missile Range, N. M.

GD/Convair men taking part were: J. B. Hurt, Little Joe II program manager; D. G. Moody, deputy program manager-engineering; G. A. Gibbons, C. L. Glasson, C. L. Heinrichs, R. K. Jepperson, W. L. Johnston, R. E. Malm, R. G. McGeary, R. S. Oberst, V. J. Park, R. L. Phillippi, H. B. Riggs, N. L. Wener. E. E. Christian and F. H. Wallbrink represented BUWEPS.

GD/E Installs Paint Facility, Saving Forecast

(Continued from Page 1)

According to J. P. Morris, manager of production engineering which initiated bringing the operation in-house, the GD/E facility will greatly decrease, by as much as half, the cost and time of having such work done outside of the division.

He said that the paint facility was acquired with a minimum of expenditure for capital equipment and can be operated at a low overhead. In addition, closer quality control standards than were possible at outside sources can be maintained.

The paint shop encompasses a 30x70-ft. enclosed area along the east wall at Col. 15 of the fabrication department. Equipment now installed includes two paint booths, a dry oven, and the newly-acquired electrostatic spray gun.

G. L. Hale, supervisor of fabrication planning and methods, directed production engineering responsibilities in establishing the new facility. Operation of the paint shop will be under L. F. Kruse, general foreman of fabrication and assembly.

Spare Parts Cycle Shown Customers

(Continued from Page 1)

Team members and their airline affiliations were: H. E. Brown, Air Transport Association secretary; E. L. Worsham, Eastern Air Lines; Karl Beinhauer, Alitalia; E. L. Elliott, M. R. McMahon, J. P. Scholze, J. D. Dunn, Delta Air Lines; B. L. Southwick, H. J. Fox, American Airlines; H. I. Reynard, Trans World Airlines; C. L. Vaudrey, United Air Lines; K. W. Kendrick, Western Air Lines; R. L. Sonner, Pan American World Airways; Keith Grayson, Trans-Canada Air Lines; C. M. Mathews, Braniff International Airways; G. M. Schmidt, Lufthansa German Airlines.

AF SPECIALIST LEAVES GD/CONVAIR

Terry Rogers, better known as "Tiny," who has been based at GD/Convair since 1957 as industrial specialist with the Air Force Contract Management District, will vacate the post the end of this month. Rogers is well known throughout Convair from the many contacts made during the years he has been at Plant 1.

INSTALLATION REVIEW — B. J. McCarty of NASA's Apollo Spacecraft Project Office (right) hears Don Moody of GD/Convair Little Joe II program explain fin and reaction control system installed on first attitude control vehicle.

New Soldering Class to Begin

A new soldering class for certification and recertification of several GD/Convair personnel connected with Little Joe II work started this week, announced H. W. Rubottom, head of educational services.

Four inspection, electric bench, wind tunnel people from Convair and one man from Kinetics Corp., Solano Beach, a Convair subcontracting firm, are entered in the course. Classes are limited to six.

Certification to NASA qualifications requires 40 hours of training; recertification, which must be done each year, takes 24 hours.

The current class in GD/Convair's certified school is one of a continuing series. Future courses will be scheduled as necessary, probably on a one-a-month basis, said Wayne Turner, certified instructor.

Over the last year more than 100 Convair and GD/Electronics people have been certified to NASA qualifications in the school.

Engineer Qualifies For Writer Award

Robert W. Casebolt, GD/Convair engineer, has qualified for the division's $150 Writing Award.

His article, "Development of a High Temperature (1,500° F.) Nuclear Radiation Resistant Pneumatic Power System for Flight Vehicles," was published in the January issue of the SAE (Society of Automotive Engineers) Journal.

Freeman, Wood Seeking Office As Club Prexy

Two long-time members, Joe Freeman and W. J. Wood, have thrown their hats into the ring as candidates for president of the GD/Convair Management Club for the 1964-65 term.

Freeman, material project analyst in Dept. 42-0, and Wood, loft group engineer (Dept. 6-21), headed the list of nominees announced at the St. Patrick's Day meeting at El Cajon Elks' Club.

Both have served in many capacities in the club over the years. Freeman is currently first vice president, stepping into the position last fall from his elected office of second vice president upon the resignation of D. L. Macey. He had been financial secretary the year before and a member of the board of directors.

Wood was financial secretary for the 1961-62 club year and also had been on the board, heading publicity and education committees at different times. He also served as the Convair club's representative on the San Diego Area Council of NMA.

Both have been with Convair well over 20 years. Freeman joined the division in purchasing in 1940 and Wood entered the engineering department in January, 1942.

Other nominees presented by L. G. Lawson, chairman of the nominating committee, are:

First vice president—M. L. Sweeney (Dept. 42-5); J. W. Woodhouse (Dept. 23-1).

Second vice president—Ray Lange (Dept. 14-5); J. L. Williamson (Dept. 401-5).

Recording secretary—C. H. Hahn (Dept. 28-0); B. G. Nelson (Dept. 3-8).

Financial secretary—R. G. Macomber (Dept. 93-3); J. A. McSparron (44-4).

Treasurer—R. T. McMurry (Dept. 25-5); K. K. Verseckes (Dept. 93-0).

Three-year board of control member—T. C. Berardini (Dept. 102-0); M. C. Tombler (Dept. 6-0).

Two-year board—L. J. Solheid (Dept. 16-1); T. W. Ochodnicky (Dept. 6-0).

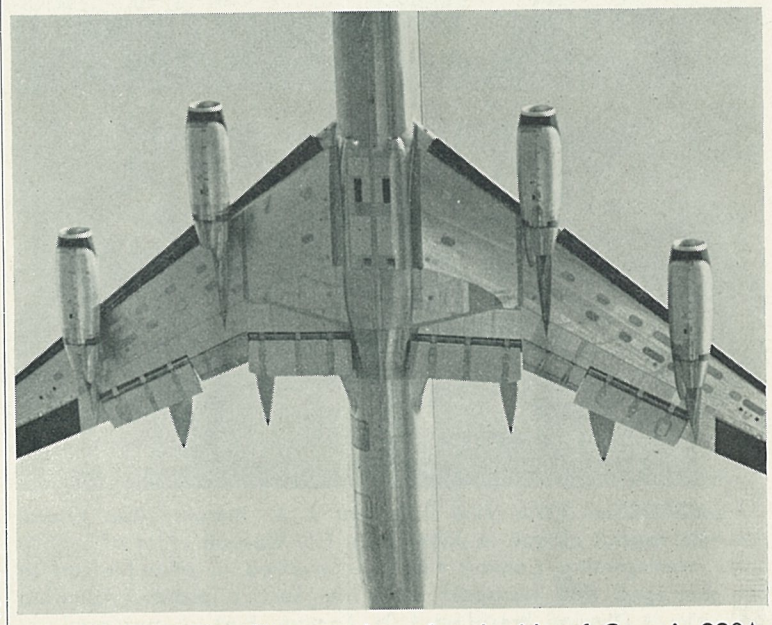
One-year board—Jack Benedict (Dept. 141-0); K. C. Cummins (Dept. 97-4); H. B. Day (Dept. 16-6); W. J. Durflinger (Dept. 115-0); R. D. Gowdy (Dept. 101-0); J. E. Miller (Dept. 97-2); C. S. Strand (Dept. 131-0); S. W. Swenson (Dept. 6-2).

990A Photo Widely Noted

A double-spread close-up photograph in four colors of the Convair 990A, shot by GD/Convair photographers, was responsible for chalking up high interest marks by readers of trade publications during the last year.

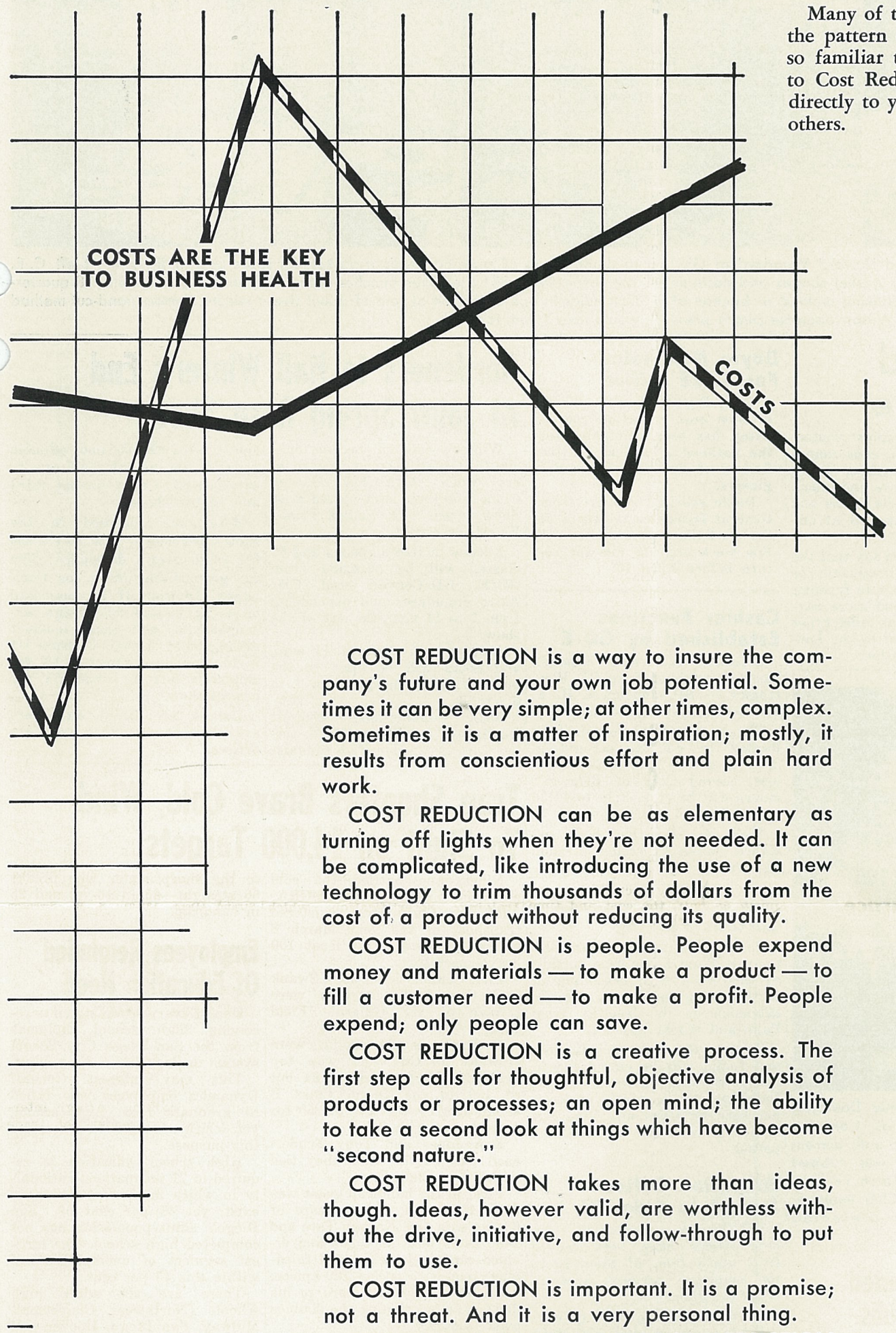
The photo highlighted a Republic Steel Co. advertisement run five different times in three publications. According to a recent survey, the advertisement had one of the highest readership ratings of any carried in Business Week during the year of 1963. The same ad appeared twice in Iron Age and twice in Steel publication, in addition to Business Week.

Caption identifying the blown-up underside of the wing pointed out that the Convair 990A had been introduced as the world's fastest commercial jet airliner.



EYE-CATCHING—Close-up shot of underside of Convair 990A, clearly showing speed capsules, is credited with catching attention of most readers when run in steel company advertisement carried in several trade publications last year.

COST REDUCTION EVERYBODY'S JOB



COST REDUCTION is a way to insure the company's future and your own job potential. Sometimes it can be very simple; at other times, complex. Sometimes it is a matter of inspiration; mostly, it results from conscientious effort and plain hard work.

COST REDUCTION can be as elementary as turning off lights when they're not needed. It can be complicated, like introducing the use of a new technology to trim thousands of dollars from the cost of a product without reducing its quality.

COST REDUCTION is people. People expend money and materials — to make a product — to fill a customer need — to make a profit. People expend; only people can save.

COST REDUCTION is a creative process. The first step calls for thoughtful, objective analysis of products or processes; an open mind; the ability to take a second look at things which have become "second nature."

COST REDUCTION takes more than ideas, though. Ideas, however valid, are worthless without the drive, initiative, and follow-through to put them to use.

COST REDUCTION is important. It is a promise; not a threat. And it is a very personal thing.

SOMEWHERE THERE'S A *COST REDUCTION* IDEA WHICH ONLY *YOU* CAN DO SOMETHING ABOUT. *WHY NOT START NOW?*

On the Other Hand . . .

If you really want to be obstinate about it, Cost Reduction doesn't stand a chance. You can kill — or maim — most Cost Reduction ideas by prefacing your reactions with one of these phrases:*

A swell idea, but . . .
We've never done it that way.
It's not our job.
Probably tried that before.
Our operation is different.
Too much paperwork.
Let's shelve it for the time being.
Too wild; won't sell.
Sounds foolish.
It'll make the boss mad.
Let's not step on toes.
Why start anything now?
New men won't understand; old men won't use it.
I just know it won't work.
We have too many projects now.
Let's form a committee.
What bubblehead thought that up?
We haven't the time.
Too academic.
Who do you think you are?
Why waste time on it?
Let's discuss it some other time.
Let's think it over later.
That's not our problem.

*From "Creative Thinking Courses, Inc."

Many of the best Cost Reduction ideas can be found in the pattern of day-to-day work where they have become so familiar they are often overlooked. Here are 12 ways to Cost Reduction success. Perhaps they can be applied directly to your job; or, if not, perhaps they will suggest others.

1 *Is someone doing something for you which you could do yourself? Conversely, are you providing a service which could be provided more economically somewhere else?*

2 Do automated methods really help your operation? For example, do you really need electronic data processing services, or would manual methods serve as well, at less expense?

3 *Do you know how much your operations really cost? Find out. Ask the financial section, if necessary. Then recheck those operations which look suspicious.*

4 Are you using special parts or materials when standard items would do? Could an off-the-shelf vendor product do the same job better or cheaper?

5 *Have you done your "homework"? Keep up-to-date with trade and technical publications for ideas, the latest technology. Compare competitors' methods and products with your own.*

6 Have you really analyzed your job? Each task has three parts: (1) make ready, (2) do, (3) put away. Only the "do" part makes money. Look for improvements in the "make ready" and "put away" portions first.

7 *Can you see your operations objectively, from the other fellow's viewpoint? Ask of each job detail: Why is it necessary? Can it be eliminated or combined? Could it be economically mechanized?*

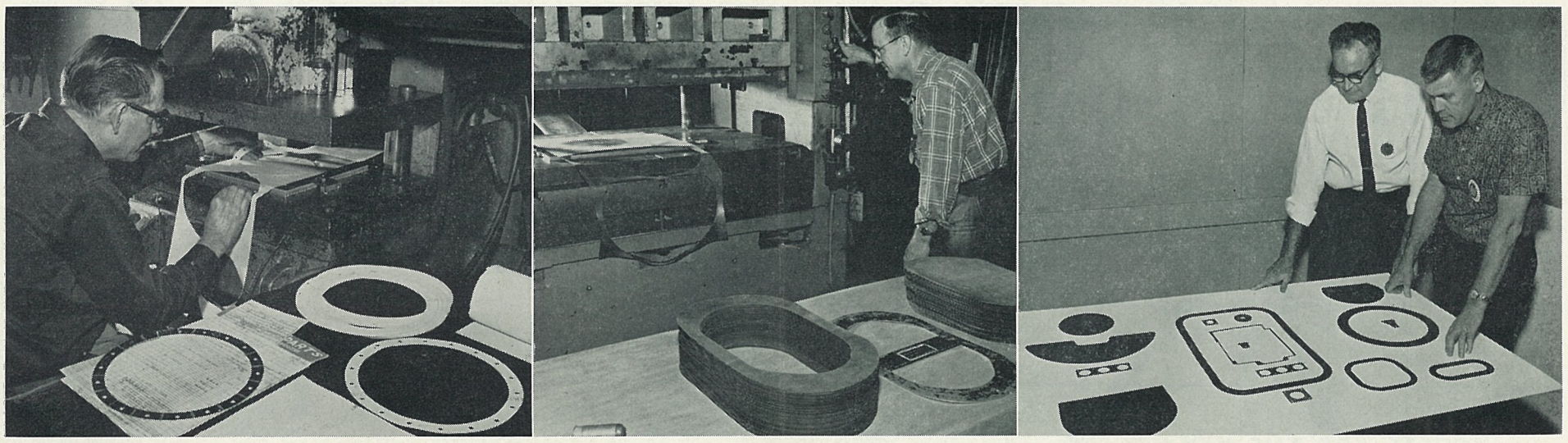
8 Does each of your operations provide a necessary result? Or are some required because of improper performance of previous operations? Is an operation being performed purely from habit? Was it, perhaps, established to correct a situation since corrected?

9 *Can you improve your work area layout to speed work flow and boost production? Are tools pre-positioned and parts easy to reach? Look for ways to reduce set-up and starting time; to optimize lot size; to eliminate waiting time.*

10 How about specifications? Are performance requirements too stringent? Environmental specifications realistic? Do specifications permit ease in assembly operations?

11 *Can you combine operations and reduce material handling; or find ways to prevent scrap, reduce waste and lost time? Would it be economical, for example, to use tandem or multiple dies? To make packing a part of final assembly?*

12 Is there another way to do a job and get the same results at lower cost? Could less expensive materials be used? Can tolerance or finish requirements be relaxed?



GASKET STAMPING—At far right, Hank Mohr and Howard Woodard of GD/Convair Dept. 101 examine display of few of rubber gasket shapes and patterns which can be turned out in quantities by Convair's blanking method at fraction of time and cost of former procedure. In center, Clint Wilson operates punch press to shape stacks of large access door gaskets for spare parts in jig time. At left, C. R. Thompson, Dept. 101 diemaker, punches out air conditioner gaskets with 18 quarter-inch holes in one operation at rate of about five a minute. Former hand-cut method would take 3 min. for each.

New Blanking Method Is Simple, Inexpensive

GD/Convair's revolutionary blanking method, which was developed for forming flat parts of irregular shapes (**GD/NEWS**, Feb. 20, 1963) is proving its worth as it is put to work in other areas.

Now, the simple and inexpensive blanking procedure is stamping out rubber gaskets in a fraction of the time it formerly took to shape them by hand.

According to the ingenious team of H. A. Mohr and H. M. Woodard of Dept. 101, who were responsible for development of the Convair blanking method in the first place and who are directing every effort to find more applications for its use, any size or shape of gasket can be blanked at a rate of four to six a minute.

Before, when gaskets, made in-plant, were hand-cut to template patterns, it required about three minutes to shape each gasket. Four separate operations were necessary. First, the basic outside shape was cut; next, the inside area cut and removed; third, it was necessary to paint over templates to locate position of holes; and finally, the holes were punched out one at a time.

Using the one-operation blanking procedure, a gasket of any shape, with any number of holes of any size, can be cut with one stroke of the punch press. Dies for each gasket can be used over and over indefinitely since they never wear out.

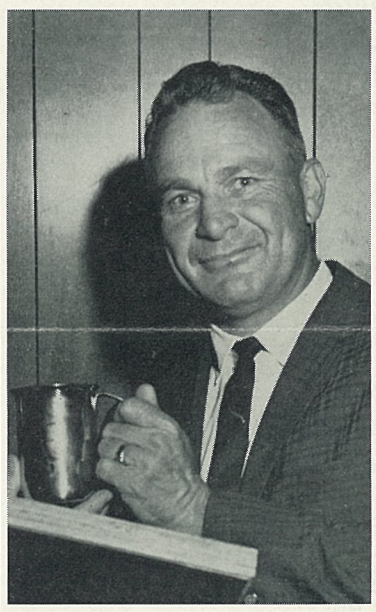
Based on an average of 431 different types of gaskets to be used this year for the C-141 empennage and spare parts alone, savings are calculated at a minimum of nearly $15,000.

The same one-stroke forming has also been used to shape hundreds of small X-shaped pieces of styrofoam which go into C-141 leading edge ribs to hold the shape of the fiber glass cloth during setup.

By the former hand method the Strux material, a type of styrofoam, had to be cut into strips on a saw, the radius routed, pieces cut to length, ends rounded, carved to fit location, separate strips put in place and glued. Now, the blanking die forms and cuts the entire shape all at one time.

Mohr and Woodard say that the blanking method is invaluable for cutting costs and time in forming and predict more and more savings to the division as other types of work are directed to the low-cost blanking operation.

SINGLE STROKE — Jack McDonald, Dept. 101 press operator, measures styrofoam "cross" for C-141 leading edge ribs, formed and cut in one stroke by blanking method.



MUGGED — Ernie Damarus, who has served as Convair's chief tool engineer until current transfer to Astro, was tabbed Mug of Month at March 17 Convair Management Club meeting. E. W. Feddersen presented award.

Plaques Presented To Con-Trib-Clubs

Plaques for outstanding participation in the recent United Community Services campaign have been presented to three General Dynamics' Con-Trib-Clubs.

The "leadership awards" for contributions to UCS in 1963 went to GD/Astronautics, GD/Convair, and GD/Electronics Employees' Con-Trib-Clubs.

Dick Mitchell, Astro committee chairman, accepted that division's plaque on behalf of committee members and all Astronautics' contributors. Jack Swank, GD/E Con-Trib committee chairman, and J. K. Field, GD/Convair chairman, represented their respective organizations.

Long Illness Fatal To Ona Mae Carroll

Mrs. Ona Mae Carroll, former GD/Convair employee and wife of Arnold W. Carroll, GD/Astro Dept. 141-2, died last month, after surviving for more than two years through use of an electronic "heart pacer."

Both Mrs. Carroll and her husband were prominent in San Diego gardening circles, members of both ARA and CRA Garden Clubs.

Doyle Nominated For SAVE Office

C. S. Doyle, GD/Fort Worth division cost reduction coordinator, has been nominated for the national presidency of the Society of American Value Engineers.

Doyle solicited support from General Dynamics members of SAVE. Ballots were mailed out this week and are due for return before April 10.

Cashier Functions Established by GD/E

Separate cashiering function has been established for GD/Electronics — SD, announced H. F. Johnson, GD/E controller.

The cashier's window will be located in general accounting, area H, across from office services, second floor of Bldg. 51. Hours will be from 8:30 to 11:30 a.m., 1 to 4:15 p.m.

Vicki S. Allen has been assigned duties as acting division cashier.

Freeway Construction Curtails Parking

Parking on streets near GD/Convair Plant 1 has been curtailed this week with beginning of earth-moving operations for the extension of the freeway from Palm and Washington St.

Spruce St., between Kettner and India, will be closed indefinitely. Parking on both sides of India and the east side of Kettner between Olive and Vine Sts. is not allowed for an indefinite period.

Education Office Moved to Bldg. 32

GD/Convair educational services offices have been moved from upper floor of Bldg. 15 to the employee services area in Bldg. 32, Plant 1.

H. W. Rubottom, head of educational services, and his staff, Wayne Turner and Martha Peterson, are now located next to safety offices. Phone extensions are 491, 464, or 1705. Mail zone is 3-60.

Con-Trib Approves Donations of $500

Two donations of $500 each were approved at last week's GD/Convair Con-Trib Committee meeting.

Volunteers of America will use its $500 to help meet capital expenses. The equal amount going to the Children's Dental Health Association will go toward support of the association's second clinic during the rest of the school year.

ROAD BETWEEN PLANTS CLOSED

Access road between GD/Convair Plant 1 and Astro Plant 19 (formerly Plant 2) has been closed to all traffic indefinitely.

Salvage Schedule

Salvage yard schedule at Convair and Astro plants for the next three Saturday mornings is:

Convair—March 28, April 11.

Astro—April 4.

Gardeners to Hail Winter's End At Joint Spring Rose Show

Winter's end will become official for General Dynamics gardeners when ARA-CRA Garden Clubs hold their joint Spring Rose Show, April 5 in Balboa Park's Floral Assn. Bldg.

Entries in five divisions and 56 classes will be accepted from GD/E, GD/Convair and GD/Astro employees and dependents from 7 to 11 a.m., the day of the show.

Judging will start at 11 a.m., and doors will be open to the public free of charge from 1 to 6 p.m.

ARA Commissioner Everett Henderson, and Henry Boyd, acting Convair Garden Club commissioner, said ribbons and valuable merchandise awards will go to entries ranked first, second, third and best-of-show.

Roses are featured in the show's Division I, with 30 classes for roses grown disbudded; five for grandiflora; three for floribunda. Division II is comprised of eight classes of design arrangements, and three bouquet arrangement classes. Division III is for corsages; Division IV for children's entries; Division V for best-of-show.

Details are listed on flyers available at employee services offices.

Trap Shooters Brave Cold, Wind To Sight on 14,000 Targets

Ninety-nine battled the cold and wind for cash prizes at CRA-ARA Gun Club's first registered trapshoot of the year March 8 before a crowd of at least 100 brave spectators.

CRA Commissioner Jack Swank said that 14,000 targets were thrown at the Gillespie Field Range.

Taking home silver dollars were Howard Jacklin who won top prize of $25 for scoring 94 out of 100 in the 16-yd. Class B event. Jim Prewitt got $12.50 for second spot with 91.

Don Jones and Tony Scuderi each won $18.75 when they tied with 91s in Class C.

First in the handicap event was John H. Smith with a score of 86. He won $35. Nathan Tate and Don Estes both shot 85s and divided combined second and third-place money to pocket $20 apiece.

Jacklin added $15 more to his day's take by winning the doubles event with 88.

Next ATA shoot has been set for April 5, said Swank. A Troy-type trapshoot, with $155 at stake, will be held this Sunday (March 29) at noon. The lion's share of the purse, $115, will go to the sharpshooter who breaks 50 straight—25 in 16-yd. and 25 in handicap.

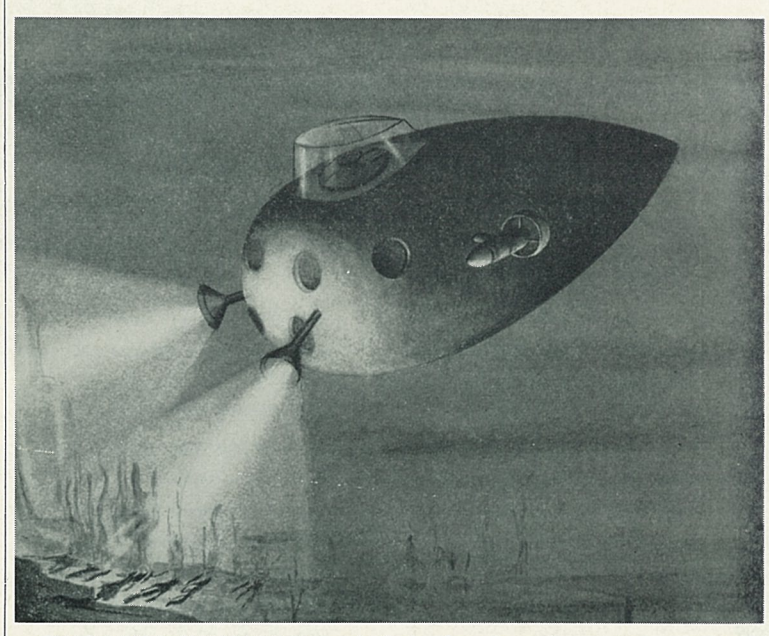
Employees Reminded Of Education Need

One of every seven students receiving high school diplomas from the San Diego City School system during 1963 was an adult.

This may interest General Dynamics employees who failed to graduate from high school, yet desire to return to school for this purpose.

High school education is required in 71 occupations nationally in which manpower shortages exist, yet 45 per cent of San Diego's adult population has not completed high school. The largest segment of unemployed are within this 45 per cent.

There are six adult high schools (Northwest, Clairemont, Midway, San Diego, Hoover and Memorial) in the immediate San Diego area. Adjacent school districts also have adult schools. All offer courses in the evening. Each has a special counseling service.



TWO-MAN SUBMARINE — Artist's drawing shows two-man submarine to be built by Electric Boat division for University of Pennsylvania and used for archeological expeditions off coast of Turkey.

CRA Calendar

(Convair Recreation Association has some 30 activities in operation for Convair and Electronics people. For information call CRA headquarters, ext. 1245.)

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AEROMODELERS — Flying sessions Saturday and Sunday mornings, 8 a.m. to 1 p.m., Clairemont Mesa Flying Site.

BOWLING — Sign now for annual CRA plant championship tourney, May 9-10, 16-17, Pacific Recreation. Entry forms at CRA office, Bldg. 32, Plant 1.

BRIDGE CLUB — Play open to all General Dynamics people each Wednesday evening, 7:30 p.m., Convair executive dining room, Pacific Hwy.

CAMERA CLUB —Joint CRA-ARA meeting April 5, 7:30 p.m., Photo Arts Bldg., Balboa Park.

FENCING — Workouts and instruction each Friday night, 7-10 p.m., YWCA, 10th & C Sts.

GARDEN CLUB —Joint CRA-ARA meet Wednesday (April 1), 7:30 p.m., Floral Association Bldg., Balboa Park. Exchange of plants and dahlia tubers. Annual Rose Show Sunday (April 5). Public welcome free of charge, 1-6 p.m.

GLIDER CLUB — Meetings every second Saturday, 8 p.m., Golden Hills Playground Recreation Hall, 28th & A Sts. Call Don Larsen, ext. 2470, Plant 1.

GUN CLUB — Troy-type trapshoot March 29 at noon; registered ATA shoot April 5, Gillespie Field Range.

ICE SKATING — Thursday ice skating sessions, Mission Valley Ice Plaza, 6:30-8 p.m.

MODEL RAILROAD — Work nights, Fridays 7:30 p.m.; open sessions, Sundays, 1-4:30 p.m., House of Charm, Balboa Park.

MOVIES — Reduced prices for General Dynamics people at State Theater, Euclid and El Cajon Blvd. General admission: adults, 75c; children, 25c.

PISTOL CLUB — CRA club shoot April 12, 9:15 a.m. San Diego Police Pistol Range, Federal Blvd. and Home Ave.

RADIO CLUB — Next meeting Thursday (April 2), 8 p.m., Harbor Drive club headquarters.

RIDING CLUB — Regular meeting April 2, 7:30 p.m., Gillespie Field Clubhouse.

ROCKHOUNDS — Meeting April 9, 7:30 p.m., Gillespie Field Clubhouse.

SPORTS CAR CLUB—Meeting April 1, 7:30 p.m., Convair main dining room, Pacific Hwy.

STAMP CLUB — Regular meeting April 2, 7:30 p.m., Convair executive dining room, Pacific Hwy.

VOLLEYBALL — Workouts Wednesday nights, 7-10 p.m., Balboa Park's Muni Gym. League play starts early next month.

WATER SKI CLUB — Skiing weekends on Mission Bay on phone-call basis. Call Gene Sevigny, ext. 2701, Plant 1.

Sweetland Assumes Additional Duties

O. W. Sweetland has been appointed superintendent of tooling and methods at GD/Convair, with responsibility for tool engineering, tool manufacturing, and manufacturing methods functions, announced W. R. Bruce, director of operations.

Sweetland, who previously was superintendent of tool manufacturing, assumes the responsibilities of E. H. Damarus, chief tool engineer. Damarus has accepted a position with Astronautics division as chief of applied manufacturing research and process development (Dept. 290), Plant 19.

In his new post, Sweetland reports to W. D. Reed, manager of manufacturing.

In other realignments within the Convair organization, plant engineering functions under Vern Sharp also will report to Reed, and E. W. Feddersen will report directly to Bruce as chief of manufacturing research and development.

Savings Bonds Good Place for 'Pay' Hike

GD/Convair and GD/E paychecks at San Diego are "fatter" by approximately $105,000 a month as a result of decreased tax withholding.

Could there be a more "painless" time to increase purchase of U.S. Savings Bonds by payroll deduction?

GD/E Wives Schedule Lunch at Miyako's

GD/Electronics wives will meet at Miyako Restaurant, 2137 Pacific Hwy., for their April 9 luncheon.

Description of a tour by air to the New York World's Fair will be outlined by a speaker from the Travel House at La Jolla.

Guests are welcome to the 12:30 o'clock social hour and 1 p.m. luncheon. Price is $2.25.

Reservations must be called in by April 6 to the hostesses: Lorraine Driscoll, phone 488-0306, and Irene Moffett, 488-6331.

Vern Mardis Winner By Point in .22 Cal.

Vern Mardis led the pack to barely nose out opposition in CRA Pistol Club's March 8 matches, winning the master class of the .22-cal. Police Course by one point.

Mardis shot a 293. CRA Commissioner Joe Williamson was close behind with 292 and Jim Halfacre's 291 left him in third.

W. G. Walker took the expert class with a 285, followed by Ralph Picard of GD/E, who scored 243.

In the .45-cal. Short National event Walker placed first with 252 with Halfacre shooting 251 for second.

GD/E Girl Golfers Play Singing Hills

Mary Ranson and Juanita Tilaro, both of GD/E, won golf clubs for best score in the low-ball medal doubles over Singing Hills fairways in the GD Women's Golf Club's March 14 tourney.

Coming in second were Jo Ann Kranz, also GD/E, and partner Jean Hawthorne. They won tee and scorecard holders. Pastel-colored golf balls went to third-placers, Margaret Clark of Convair and Emma Webb, GD/E.

Next monthly tournament has been set for April 11 with location to be announced.

Ten Teams Will Vie In Volleyball Meet

Ten teams probably will be competing in the IRC volleyball tournament which will swing into action the first part of April, said Pete Beyrer of CRA, who is managing the league.

One team from Convair and another from GD/E have signed up for the industrial tourney.

Teams now are working out every Wednesday night from 7-10 p.m. on Muni Gym courts, Balboa Park, to get set for tournament play.

GD/E Mgt. Club Holds Dance at Wagon Wheel

General Dynamics/Electronics Management Club members and their ladies enjoyed a dinner-dance last Thursday evening (March 19) at the Wagon Wheel in Santee.

Van Woody's dance band played for dancing after the steak dinner.

First CIP award given by the GD/Electronics club was scheduled, T. E. Morris, program chairman, reported.

The March meeting originally had been set for Vacation Village.

Convair and Douglas Trailerites Gather At Birthday Outing

Over 60 trailerites from Convair and Douglas Aircraft gathered for the third year to celebrate their anniversaries together at Barrett Lake Trailer Park, east of Jamul, over the weekend of March 13-15.

It was the fourth birthday of CRA Road Runners and sixth for Douglas Jetliners.

A full weekend of activity was planned by Boots Lathrum, program chairman, and her assistant, Ruth Peterson.

Ray Devin called for square dancing. Wagonmasters were Roland Lathrum and Pete Peterson.

Next outing, April 10-12, is being planned by the Road Runners' teen-age group. John Peterson and Carol Perkins are in charge.

Team 5 Is Leading Firemen's Keg Loop

Fire Chief Del Dimmitt's hot Team 5 is leading in the smoke eaters' current winter bowling battle with only four weeks yet to go.

The No. 5 team of Dimmitt, Fred Green and Hugh Rae stepped into first place in the 25-week league with 39½ wins.

Team 2, captained by Charles Hamel, was in second spot with 35 wins. Pete Houtkooper's Team 1 was third with 32½ games to its credit, and Team 3, led by Ralph McConnell, was only half a game behind. Team 4, captained by Clayton Hassel, was trailing in the crowded contest with 29.

The Convair fire boys have been scorching the alleys of La Mesa Bowl every Friday afternoon with some blazing performances turned in lately. Dimmitt busted the pins with a finger-tip ball for a 629 series in recent play and Hugh Rae has given the hopefuls a 260 high individual game to shoot at. Leo Slosser stood high for the season with a 639 three-game series.

Top U.S. Badminton Players to Compete

Badminton fans will have a chance to see top-ranking players compete in the U.S. Open Badminton Championships this weekend in Balboa Park's Federal Bldg.

Reduced admission prices have been arranged for GD/Convair and GD/E spectators through courtesy of CRA. Exchange tickets, good for 50 cents off regular charge, now are on hand at all Convair and GD/E employee services outlets for the March 27 and 28 matches.

This is the first national badminton tournament to be held in San Diego.

'Vacation Fashions' Scheduled April 22

"Vacation Time Fashions," of interest to both men and women, will be shown in an IRC style show April 22 in El Cortez Hotel's Caribbean Room.

Styles will be presented by El Cortez Fashion Quarters and El Cortez Man's Shop with Molly Morse commentating.

GD/Convair and GD/Electronics people may purchase tickets to the 7:45 p.m. affair at $1.30 each at all employee services outlets of the two divisions.

Discount Tickets To Rodeo on Sale

Discount tickets at a 20 per cent reduction are available to GD/Convair and GD/E people to the Championship Rodeo this Saturday and Sunday, March 28-29, at Gillespie Field, El Cajon.

Reduced price for adults is $2; children, 5-12 yrs., 80 cents. Youngsters four and under are admitted free. Performances will be 1:30 and 7 p.m. on Saturday and 2 p.m., Sunday. El Cajon Jaycees are sponsoring the event.

Discount tickets are on hand at GD/Convair and GD/E employee services.

Sports & Recreation

DISMAY—Box of radio tubes comes as shock for characters in "The Curious Savage." Astro drama club production opens tomorrow. From left: David Van Buskirk, Betty Smith, and featured player, Lillie Mae Barr.

CRA Sports Car Club Will View Movies of Weekend Indio Trip

Movies of CRA Sports Car Club's outing to Indio early this month will be shown at next Wednesday's (April 1) meeting at 7:30 p.m. in the Convair main cafeteria, Pacific Hwy.

Program also will include display and discussion of Jaguar cars.

Twenty-seven CRA sports car enthusiasts and members of their families journeyed into the desert area over the weekend of March 7-8, making headquarters at the Thunderbird Motel in Indio.

Tour leaders were Bobby and George Wilson. Others in the caravan were Grace and Gerry Wright (CRA commissioner), Fred Thatcher, Verne Mathews, Roberta and Clark Kerr, Marion and John Ford, Carol and Chuck Backus, Charlotte and Bob Chillo, Alice and Al Ohler, Carol and Gerry Coffey, Stelly and Ed Burger, Ginger and Earl Lind, Mary Jo Hotz, Steve, Tim, Pete and Pat Wilson.

Part of the group took the trip up the aerial tramway to the top of Mt. San Jacinto for luncheon on the mountain top and an awe-inspiring view of the surrounding area until a minor blizzard blotted it out. Temperature changed from 70 degrees at the valley floor, 400 feet above sea level, to 10 degrees at the upper tramway terminal, 8,400-ft. elevation.

Rest of the travelers toured Palm Springs, Palm Desert, Indio.

Return trip home was made either through the mountains, by way of Ramona and Santa Ysabel, or along west side of Salton Sea and across the Anza Desert, depending upon choice of the drivers.

Model Railroaders Hold Division Parley

Bob Durnell of GD/E chaired the spring meeting of the San Diego Division of the Pacific Coast Region of National Model Railroad Association last Sunday in his capacity of division superintendent.

The March 22 all-day meeting drew approximately 150 model railroaders in San Diego and Imperial counties to Balboa Park's House of Charm.

Other GD men taking part included Karl Busch of Convair Dept. 16 who gave the regional convention planning report. The San Diego Division will host the Region gathering May 1, 2, 3.

Bert Gowing, formerly of Convair, acted as paymaster and chief clerk for the division meeting's auctions, raffle, door prize awards.

Ralph Way Tops CRA Golf Play

Ralph Way (Dept. 400) stroked his way to first low gross spot with a score of 75 in CRA golf play March 14-15 at Carlton Oaks course.

Second low gross in the top 0-15 flight was held by Russ Davis (Dept. 101) with an 80.

Ray Minutello (Dept. 6) had first low net score of 71. Bill Matlock, also Dept. 6, was just one point behind with 72 for second low net.

In the 16-20 flight Ed Raymond (Dept. 400) had first low gross, 82; Bill Gille (Dept. 25), second low gross, 88.

Doc Watson (Dept. 400), with a 68, won first low net standing. Oran Correll (Dept. 141) was second low net with 69.

First low gross winner in the 21-and-over flight was Chuck Stafford (Dept. 400) with 92. Ron Williams (Dept. 6) was runner-up with 99. First low net was scored by Bob Connell (Dept. 400), 70; second, A. Van Horne (Dept. 400), 73.

Bowlers Signing Up For Annual Tourney

Call is out for all GD/Convair and GD/E bowlers to sign now for the annual CRA plant championship bowling tourney.

Dates are May 9-10, 16-17. Location is Pacific Recreation bowling alley.

Co-commissioners Jim Hayman and Mike Brooks remind that entry forms may be picked up at CRA office, Convair employee services, Bldg. 32, Plant 1, or at any bowling alley where CRA leagues are in progress.

Atlas Model Will Be Used In Checkouts

Recent completion of a full-scale engineering checkout model has marked a milestone in development of GD/Astronautics' new Atlas standardized space launch vehicle (SSLV).

The checkout "bird" is identical to a flight-ready Atlas SSLV except for installation of an intermediate bulkhead between the fuel and oxidizer tanks.

The model will never be flown, but will be used at Atlas launch sites to check compatibility of ground support equipment and associated launch facilities.

Atlas SSLV, scheduled for more than 100 missions for Air Force and NASA during the 1960s, differs from previous versions of the pioneer space booster. It is comprised of a standard airframe to which kits for guidance, tracking, telemetry, autopilot, electrical systems, etc., are added to adapt it for specific missions and for launch from Atlantic or Pacific Missile Range.

Through use of SSLV, it will no longer be necessary to match vehicles to launch pads far in advance of launch date.

Following compatibility testing at launch sites, the checkout model will be returned to GD/Astro for use in establishing configuration standards.

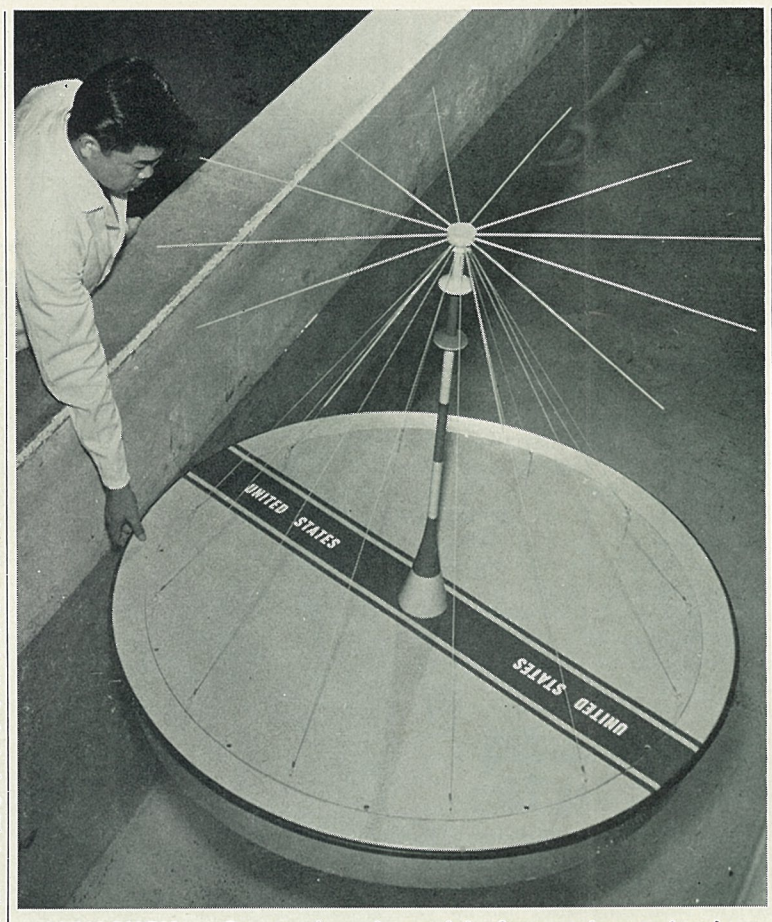
J. S. Berggren, assistant SLV program director, said each flight Atlas will be designed and manufactured exactly like this standard vehicle.

The SSLV program is a portion of GD/Astro's Space Launch Vehicles project under C. S. Ames, vice president and program director.

SSLV VISITOR — Completion of engineering checkout model of new Atlas "standardized space launch vehicle" brought visit to GD/Astro by Lt. Col. James P. Cann, right, of Air Force Space Systems Division. He is shown discussing SSLV with GD/Astro's J. S. Berggren, assistant SLV program director.

Reliability Director On Quality Program

P. I. Harr, GD/Astro director of reliability control, will speak at the Portland, Ore., conference of American Society for Quality Control (Western Region), April 9-11.



NEW BUOY — One-tenth scale model of new telemetering buoy is tested in GD/Convair towing basin by S. T. Uyeda, Convair engineer. Convair will build two full-scale prototypes of buoy for Office of Naval Research as part of development of oceanographic telemetering system.

GD/Convair to Build Prototypes Of New Marine Research Buoys

Convair division of General Dynamics will build two full-scale prototypes of new type buoys developed by Convair marine engineers for telemetering oceanographic data for the Office of Naval Research, Washington, D.C.

The buoys will be tested later this year off the coasts of Florida and California.

Fabrication of the buoy prototypes stems from a study program awarded Convair by the Office of Naval Research in 1960. Since that time it has been a top research and development program at Convair, according to J. H. Famme, division president.

Objective of the program is to develop a much-needed system for gathering and storing oceanographic data and transmitting it to shore stations from thousands of miles out at sea with maximum reliability and utility.

An important aspect of the Convair study has been to compare many shapes and sizes of buoy hulls to find the one that could best support system equipment and the transmitting antenna. A relatively stable buoy shape was required, one that could support the antenna with a minimum of motion.

Requirements for the buoy were that it would be able to weather 60-foot waves, 10-knot currents, and 150-knot winds while floating on the surface and anchored in depths exceeding 20,000 feet.

Fourteen models of different shapes of buoys were tested in the Convair towing basin.

These studies showed that a discus-shaped buoy hull would best meet the various requirements. A model of this configuration was then subjected to simulated typhoon winds, waves, and currents in the towing basin. A large wind machine, which moves along the basin ahead of the towing carriage, was built especially for this purpose.

The discus-shaped buoy hull to be fabricated by Convair will be 40 feet in diameter. The hull will be topped by a 32-foot mast supporting a discone antenna, enabling the buoy's electric power system to get air from a point high above the surface.

A slack line—its length one and one-half times the water depth—will be used to moor the buoy. Electrical sensors attached to the line will take various measurements, such as water temperature at different depths, current direction and velocity, light transmission through water.

Simultaneously with the buoy hull studies, Convair has investigated other elements of the overall system. These have included antenna, data-acquisition and energy-conversion studies and radio-telemetry and radio interrogation experiments (**GD/NEWS**, Aug. 7, 1963).

Guidelines established for the development program by 20 of the nation's leading oceanographers are that the buoy have at least 100 sensors for acquisition of oceanographic and atmospheric data; that all sensors be scanned once an hour; that the buoy be capable of telemetering data stored from the sensors—upon command from a shore station as much as 2,500 miles away—once every six hours; that all data also be stored on board the buoy in a long-term memory for the recommended station endurance of one year.

The Convair program has progressed with these guidelines so that a network of these information gatherers scattered strategically throughout the world's waters would give oceanographers and meteorologists a synoptic record of air and water phenomena previously unobtainable or incomplete.

Robert Devereux has headed Convair's oceanographic investigations during the last four years.

Next Surveyor Launch To Include GD/FW Nose

A nose fairing built at GD/Fort Worth for the Surveyor Spacecraft will be atop the Atlas/Centaur when it launches a third research and development shot in the near future.

The fairing, 24 feet tall and 10 feet in diameter, was shipped via truck to Cape Kennedy Feb. 29.

It is slated to be used on the third Atlas/Centaur launching—the first using the operational fairing configuration.

"We designed and manufactured the fairing at Fort Worth division on a work assignment from GD/Astronautics," said W. A. Bratton, head of the GD/Fort Worth Centaur Program.

Surveyor spacecraft, packed with 114 pounds of instruments, is slated ultimately to be soft-landed on the moon, from where it will transmit scientific data back to earth. Its prime mission is to give astronauts a preview of moon conditions.

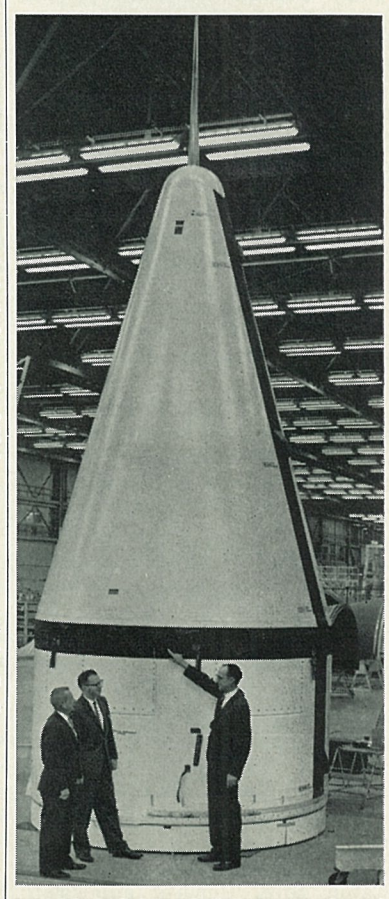
Hughes Aircraft Co., manufactures Surveyor for Jet Propulsion Laboratory, manager of unmanned lunar exploration for NASA.

The fairings, according to Bratton, incorporate explosive bolts, pneumatic thrusters, shaped charges and sealed payload requirements.

First fairing was dubbed "Fort Worth Bottlecap" and delivered with the words stenciled on the stainless steel probe protruding from the nose.

Seven Surveyors are currently programmed for lunar trips, with each to be launched by an Atlas/Centaur vehicle.

The surveyor fairing is the fourth "space project" undertaken at GD/Fort Worth. Others include the interchange adapter for the Centaur/Atlas; nose fairing for the Orbiting Astronomical Observatory; and booster sections for the Atlas missile.



BIG NOSE—Bill Bratton, head of GD/Fort Worth's Centaur team, discusses GD/FW-built nose fairing for Surveyor Spacecraft with Charles Kull, left, and George Dawson of GD/Astronautics.

Photo Technique Preserves Harness Boards at Saving

A unique photographic technique is helping GD/Fort Worth's electrical bench department save thousands of dollars a year in storage space and to simplify and speed up manufacture of electrical harness boards.

Harness boards are low-cost tools used to route and position various wires in an airplane's electrical system. These tools—as in the case of the B-58—must be kept on file for years after an airplane's regular production ends.

Each harness is 2 feet wide, 8 feet long and about 3 inches thick. Instead of storing the harnesses, Clint Bay, senior manufacturing research engineer, and Frank Williams, Dept. 7, came up with this idea: simply photograph the harnesses and file the negatives for future use.

The photos are made with a regular 8x10 view camera with 19-inch lens on a precisely aligned mount. Three separate shots of each harness board are made on a grid-marked plot.

When needed, negatives of each section can be blown up and registered by grid marks on each negative. Workmen then produce the electrical harness from the exact life-size photograph.

"It's just like following a road map," Bay said, "only it's a little simpler. Enlargements can be made within an accuracy of 1/64 of an inch."

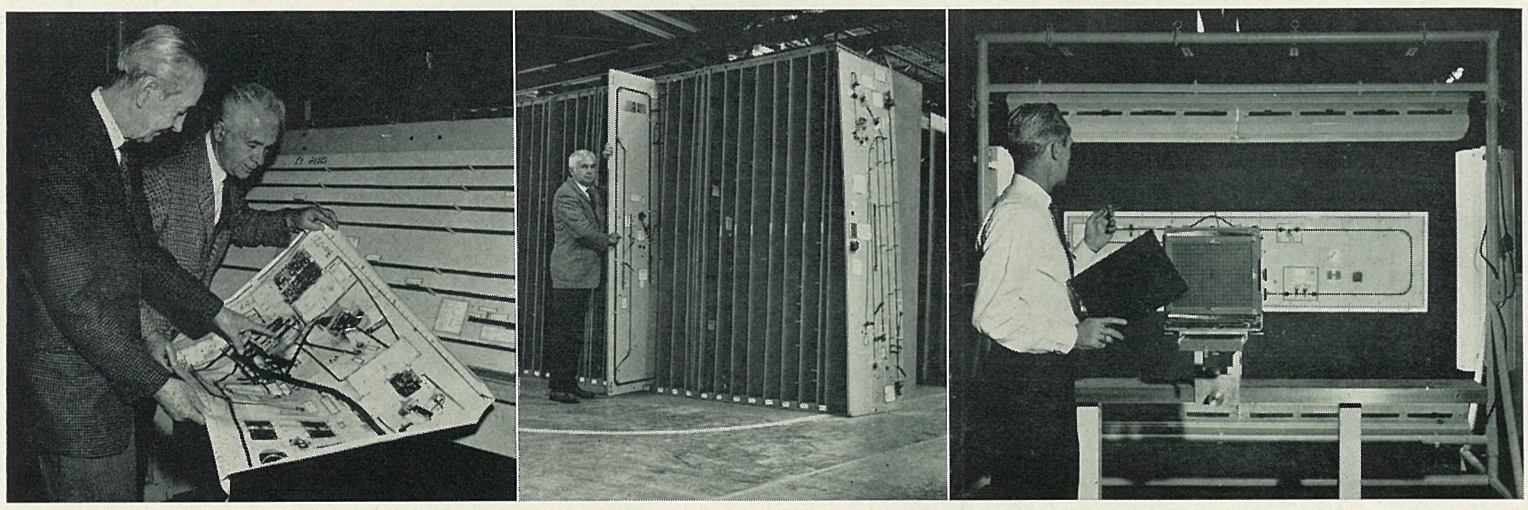
As a result of the new technique, B-58 harness board negatives can be stored in a couple of filing cabinets; regular boards required about 3,000 sq. ft. Savings will be an estimated $15,000. Comparable savings can probably result from the F-111 program.

"This technique is also helping electrical bench workmen to overcome the long-standing problem of making changes on the harness boards," Bay said.

"Previously, when an engineering design change was called for—and there might be 20 to 30 on a board—each change had to be noted. It wasn't unusual to end up with a crazy-quilt pattern which was difficult for even veteran workmen to figure out.

"Now, we can simply photograph each configuration change as it is made."

Bay and Williams worked out the photographic technique with Aaron Murray, veteran GD/FW photographer who served as technical adviser.



PRESERVED — In center photo Clint Bay of GD/Fort Worth stands beside harness boards that previously presented storage problem. Now they can be dispensed with after preservation by photo. At right Aaron Murray, photographer, uses special rig to photograph board. At left, Frank Williams and Bay, developers of idea, inspect life-size print.

GD

SAN DIEGO EDITION
(Serving GD/CONVAIR
and GD/ELECTRONICS)

GENERAL DYNAMICS NEWS

Vol. 17, No. 8 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, April 8, 1964

Convair Qualifies For 10th National Award For Safety

General Dynamics/Convair has qualified for another National Safety Council "Award of Honor."

It will be awarded for division performance from Oct. 22, 1963 to Feb. 18, 1964 during which more than 2½ million manhours were worked without a lost-time accident.

This will be the division's tenth Award of Honor. They are authorized by the Council for concerns which operate free of disabling accidents for a million manhours or more, accomplished in a minimum of 30 calendar days.

Convair's Awards of Honor date back more than a decade and include a record that still stands for the aircraft-aerospace industry, 21,814,875 manhours free of disabling injury, worked from July 22, 1956 to Nov. 3, 1956. It was in this year that Convair scored a "grand slam," not only leading the industry in safety for that year but also receiving recognition for No. 1 position over a three year period.

BILL OR JOE? — Bill Wood and Joe Freeman, candidates for GD/Convair Management Club president's slot, identify themselves as they bid for votes. Question will be answered when new officers are introduced at April 15 dinner meet.

Freeman, Wood Seeking Mgt. Club Presidency

New slate of officers selected to direct activities of GD/Convair Management Club for the coming 1964-65 term will be disclosed to members next week at the April 15 "ladies' night" meeting.

In the run-off for top post of president are Joe Freeman (Dept. 42-0) and W. J. Wood (Dept. 6-21). Deadline for return of ballots was the first of this week.

U. S. Grant Hotel's Palm Room will be the site of the Wednesday evening dinner meeting with social hour at 5:30 and dinner at 6:30 p.m.

Parking is available at the U. S. Grant Hotel garage. Overflow can be taken care of at the U. S. National Bank garage on C St., between First and Second Sts.

Besides introduction of officers, the five-star program will include presentation of the President's Award for 1963 to the person achieving the most outstanding cost savings to the division through CIPs. President J. H. Famme will present the award.

C. W. Frick, vice president of engineering, will follow with a report on the division's research and development program.

Mug of the Year will go to the Management Club member who has contributed the most to the company and the club through his own individual efforts.

Surprise entertainment is planned immediately following dinner, and the usual raffle will be held.

Sponsoring the awards night is controller's department with R. G. Macomber heading the arrangements committee as general chairman.

Tickets are on sale at $2 each at all Plant 1 outlets.

Score at Convair Start Value Stint

About 20 GD/Convair men are slated to enter the division's continuing value control training in seminar No. 21 which starts next Monday (April 13), reports H. P. Williams, value control manager.

Projects will center on contracts, now in-house, which contain the value engineering clause.

The full workshop course, first of the current year, will extend over a three-week period, concluding April 30. Wayne Turner, training coordinator of educational services, will direct.

Electronics Wives, Guests Will Lunch

GD/Electronics wives, and their guests, will gather tomorrow (April 9) for their monthly luncheon at Miyako Restaurant, 2137 Pacific Hwy.

Social hour is 12:30 with luncheon at 1 p.m. Mrs. D. J. Driscoll and Mrs. T. W. Moffett are cohostesses.

Boost in Bond Buying Slated In May Drive

An intensive effort to increase regular buying of U. S. Savings Bonds will take place during the first week of May at all divisions of General Dynamics.

Algie A. Hendrix, General Dynamics vice president-industrial relations, said the overall companywide goal is to add 12,600 new payroll deduction savers.

At the close of the 1963 campaign Astronautics was the leader among Dynamics divisions with 73 per cent, followed closely by Convair with 71 per cent.

Hendrix noted that the recent reduction in taxes will provide an extra incentive to this year's campaign.

Commenting on the reduced withholding, Robert V. Roosa, Under Secretary of the Treasury for Monetary Affairs, said recently, "It is particularly fitting when the increase of take-home-pay results from a reduction in Federal taxes that the portion saved should come back to the national government through the medium of Savings Bonds."

General Dynamics employees who are now buying bonds by payroll deduction will be given an opportunity next month to increase their amounts, and all non-buyers will be approached and encouraged to become participants.

FINAL NOTICE!

You have been receiving General Dynamics NEWS by mail as a courtesy.

If you wish this service continued please send a letter to this effect, with name and correct address, to: GD/NEWS, Box 1950, San Diego 12, Calif. If you have already written, as a result of the notice in the March 25 issue, no further notification is required.

Bus Service Links GD/E Plants at SD

Inter-plant bus service between the two General Dynamics/Electronics-San Diego facilities, Plant 1 on Pacific Hwy. and Plant 2 on Hancock St., is operating five trips a day.

Departure times from Bldg. 51, rear elevator, Plant 1 are: 8:30, 9:45 a.m., 12 noon, 2 and 3 p.m.

TOP CIP HONOR — Calvin G. Franklin is tabbed outstanding CIP submitter for GD/Electronics - SD as he receives first GD/E President's Award from division head, John L. Lombardo, at March 19 Management Club awards night.

GD/E's Franklin Earns Top Award

A man who advanced from a factory worker to assistant group engineer in the 17 years he has been with the company received the first President's Award given by General Dynamics/Electronics-San Diego for the most significant cost savings contribution to the division during the last year.

Calvin G. Franklin, 35, supervisor in GD/E test equipment calibration and control (Dept. 36-00), was singled out for the top cost reduction honor at the March 19 GD/E Management Club meeting.

John L. Lombardo, division manager, made special mention of Franklin's "perseverance, positive mental attitude, ability to perform efficiently and promptly" in all his efforts for the good of the company, as he presented Franklin the division's first President's Award plaque and the $250 check which went with it.

Franklin's Cost Improvement Proposal, which won him the 1963 award, will save GD/E $54,800 involving 15,480 manhours.

His CIP suggested that coordination with sister GD divisions and other companies might reduce labor and cost of development of the several hundred detail procedures for calibration and maintenance of test equipment used on government contracts. In order to comply with government specifications, 700 additional procedures would have been necessary. His investigation showed that 611 of these procedures, already developed and printed, could be obtained from other sources.

Franklin joined Convair production in November, 1947. He transferred to engineering department in 1954 after receiving his Associate of Arts degree in radio and television from San Diego City College, with time out for a two-year stint with the Army in Germany. He entered San Diego State in 1958 to continue his education toward an engineering degree—working full-time on the job and carrying a complete load of college courses at the same time. (He still has a semester yet to go toward that B.S.)

He joined GD/Electronics at its formation in early 1961 and in a few months was made test engineer in charge of buildup of special test equipment. In 1962 he was promoted to his present position of assistant group engineer in charge of test equipment calibration and control at Plants 1 and 2.

He also is active in the Army Reserve with the rank of captain.

Three runners-up, B. R. Miale and F. W. Matson, both of Dept. 41-20, and W. B. Lanyon (Dept. 74-10), were recognized with individual plaques at the award night meeting.

Miale, material liaison man in material stores, saved $9,308 for the division by initiating action which resulted in a new form and simplified processing for reporting shortages.

Matson, material stores supervisor, had two CIPs to his credit. One saves over 2,500 manhours and $5,982 annually by shifting the cleaning and packaging of purchased electronic parts out of plant to Disabled American Vet-

(Continued on Page 2)

AWARD WINNERS—J. E. Rutledge (far left), GD/Electronics-SD manager of systems and procedures, congratulates President's Award runners-up, who all received recognition plaques: B. R. Miale, F. W. Matson, W. B. Lanyon.

Reproduction Methods Costs Compared in GD/E Campaign

GD/Electronics - SD departments are alerted to use the most inexpensive means of reproducing departmental reports and paperwork to achieve cost savings.

In a notice going to all supervision, H. F. Johnson, GD/E controller, drew attention to relative costs of available reproduction methods:

Number of copies required should be determined when the original is first typed.

If the number needed is less than six, use of carbon paper is the most economical method.

If more than six and less than 200 copies are required, ditto process is the cheapest means of reproduction.

When more than 200 copies are needed, typing a multilith master is the most economical method of reproducing up to 1,000 copies.

Use of Xerox and Thermo-Fax should be limited to five copies of a document not initially prepared for reproduction, because of higher cost. For example, it costs 30 cents to reproduce six direct Xerox copies vs. 1.2 cents to make six carbon copies. It costs 50 per cent more to reproduce 40 multilith copies than 40 ditto copies.

"A sincere effort by all departments to analyze their reproduction needs would realize a substantial cost saving to the division," said Johnson.

Office services will screen all reproduction requests at GD/E Plant 1 to insure that the most economical method of reproduction is used.

Log Book Entries

Service Emblems

CONVAIR

Service emblems due during the period April 1 through April 15.

Thirty-year: Dept. 101, C. M. Szymczak.

Twenty-five-year: Dept. 6-31, W. C. Roberts; Dept. 25-5, G. A. DeMarino; Dept. 400-3, E. F. Gurling.

Twenty-year: Dept. 3-3, Lois W. Tenwolde; Dept. 6-22, D. M. Feeney; Dept. 16-1, L. J. Solheid.

Fifteen-year: Dept. 6, Billie L. Henry, H. C. Jackson Jr., W. G. Matlock; Dept. 25-9, F. H. Thatcher Jr.; Dept. 48-11, Evelyn M. Kaczka, Merle P. Riggs; Dept. 115, N. P. Kuntz, T. J. Nilsson.

Ten-year: Dept. 16-1, Henrietta C. Phillips; Dept. 48-70, Bernard Maddow, F. C. Thompson; Dept. 115, Howard Morrow.

ELECTRONICS

Twenty-year: Dept. 72-00, Mary W. Wright.

Fifteen-year: Dept. 72-00, Mabel H. McManus.

Ten-year: Dept. 14-30, D. O. Brending.

Awards

CONVAIR

Employee Suggestion awards approved for periods March 20 and March 27.

Dept. 27, C. L. Ford, $100.

Dept. 102, F. M. Baxter (two awards), $83.50 and $130.

Dept. 115, W. Ross, $32.30.

Dept. 119, L. O. Smith, $10.

Dept. 128, V. L. McKerrihan, $74.

Dept. 140, M. M. McCaskey, $42.50.

Dept. 171, G. L. Scheibel and H. C. Killgore (joint award), $5 each.

Cost Improvement Proposals approved for the same periods.

Dept. 34, B. J. Wilson.

Dept. 43, M. G. Tambornino.

Dept. 101, R. D. Gowdy; H. A. Mohr and H. M. Woodard (joint proposal).

Dept. 141, E. E. Miller (two proposals).

Dept. 400, O. W. Sweetland.

Retirements

CONVAIR

ACKERSON — Frank A., Dept. 171. Seniority date Dec. 4, 1951, retirement effective Jan. 14.

ANTON — Jose J., Dept. 128. Seniority date Dec. 7, 1956, retirement effective June 13, 1962.

BENTZ — John D., Dept. 180. Seniority date Sept. 26, 1951, retirement effective Feb. 7.

LYNN — Helen L., Dept. 48-32. Seniority date April 12, 1951, retirement effective Feb. 29.

MC DONOUGH—Andrew J., Dept. 140. Seniority date April 16, 1947, retirement effective Feb. 23.

ROSADO — Virgilio E., Dept. 140. Retirement effective Aug. 21, 1947, retirement effective Feb. 16.

RUBINSTEIN — Laurence G., Dept. 48-11. Seniority date Oct. 2, 1953, retirement effective March 20.

SMITH — Charles W., Dept. 401. Seniority date Sept. 21, 1951, retirement effective March 21.

VANDERBILT — Howard E., Dept. 92-0. Seniority date March 12, 1956, retirement effective March 27.

WINKLER—Arthur, Dept. 102. Seniority date Aug. 9, 1948, retirement effective Jan. 16.

Personals

CONVAIR

The family of William C. Gilchrist wish to express their thanks for the many cards and flowers sent at the time of their recent loss.

Mrs. William Gilchrist.

* * *

It is with gratitude that we acknowledge the kind expression of sympathy received at our bereavement.

Mrs. Charles F. Kohlmeyer and family.

* * *

I wish to express my thanks for the sympathy and thoughtfulness of Convair employees at the passing of my husband, Arthur J. Barry, Dept. 14-4. Your words of comfort have meant very much to me.

Ethel D. Barry, formerly Dept. 14-8.

Deaths

CONVAIR

DOLD—Walter S., Dept. 28 (on loan to Pomona). Killed March 30 in traffic accident. Survived by wife, Elizabeth, and five children.

NIELSEN—Ervin R., (recently transferred to Pomona). Killed March 30 in traffic accident. Survived by wife, Opal, and three children.

Cathay Buys Second 880-M Jet Transport

Cathay Pacific Airways Limited has purchased its second Convair 880-M jet transport, according to a joint announcement by J. H. Famme, president of GD/Convair, and W. C. G. Knowles, chairman of Cathay Pacific.

Delivery is scheduled for fall of this year. Cathay Pacific took delivery of its first Convair 880-M in February of 1962.

The airline, an associate company of Butterfield and Swire of Hong Kong, has routes extending from the Hong Kong home base to Tokyo, Osaka, Seoul, and Taipei, and ranging as far as Calcutta, Djakarta, Bangkok, Singapore, Kuala Lumpur, Brunei (Borneo), Saigon, Rangoon, Manila, Vientiane, Pnom Penh.

Convair 880-Ms, advanced version of the Convair 880 jetliner, are now in service with five airlines throughout the world.

Home Association $450 Gift Okayed

San Diego Children's Home Association was voted $450 by GD/Convair Employees' Con-Trib-Club committee at yesterday's meeting.

The Home had issued a plea for Green or Blue Chip stamp books to be redeemed for such necessary supplies as blankets, sheets, pillowcases, towels. The Con-Trib-Club Committee approved the $450 cash contribution in lieu of 150 books of stamps.

Papers Presented

ELECTRONICS - SAN DIEGO

BOYD—S. H. "Character Generators," submitted to Electro-Technology.

COMPTON — R. H. "Cathode Ray Printer Tube," submitted to Electro-Technology.

General Dynamics NEWS

Published by General Dynamics Corporation, One Rockefeller Plaza, New York 20, N. Y.; with editorial headquarters at 3302 Pacific Highway, San Diego 12, Calif., P.O. Box 1950, telephone 296-6611, ext. 1071. Logan Jenkins, editor-in-chief.

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Pomona Editorial Offices, Room 119, Bldg. 1, GD/Pomona, Mail Zone 3-13, P.O. Box 1011, Pomona, Calif. Telephone, NAtional 9-5111, ext. 6226-5279. Staff: Glenn Kehr, editor; Carol Sowers. Daingerfield news office, P.O. Box 947, Daingerfield, Texas. Telephone Lone Star, Texas, 2211, ext. 424.

* * *

Affiliated editions of General Dynamics NEWS are published in Rochester, N. Y., covering GD/Electronics and Stromberg-Carlson, editorial offices, 100 Carlson Road, HUbbard 2-2200, ext. 2555. Fred E. Voss, editor; and at Groton, Conn., covering GD/Electric Boat, editorial offices at Groton, HIlltop 5-4321, ext. 300 and 513. Joseph Tracey, editor.

CONE SPINNING — GD/Convair spinning lathe operator, Wesley Swanson, applies lubricant during spinning of C-141 nose cone on Floturn while (in background) Bob Gowdy, Dept. 101 assistant foreman, and Gerry Oliver, factory specialist, inspect finished cone turned out at great savings to division.

Reversal of Forming Methods Produces Near Perfect Parts

Dept. "One-o-One" is still living up to its motto of "getting things done" as new ideas are pulled out of the hat every day to save money for GD/Convair.

Bob Gowdy, Dept. 101 assistant foreman, is latest in the "brain-storming" clan to come up with heretofore untried methods to do a job better and cheaper.

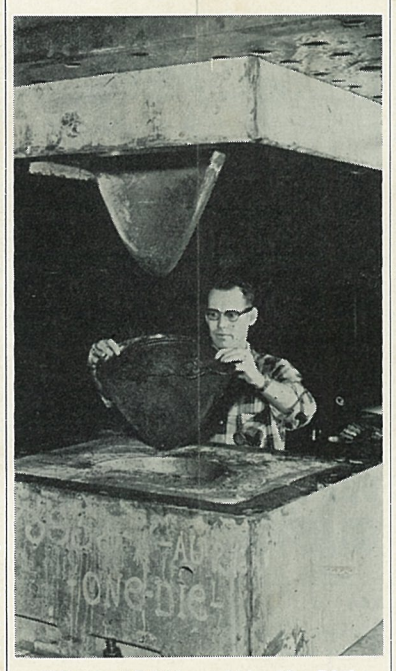
Faced with poor quality and consequent reject of C-141 nose cones, structural parts which hold the radar probes, Gowdy reversed the traditional forming method to save at least $52 a part and turn out near-perfect pieces.

Instead of hand-spinning the aluminum cones and sending them to an outside vendor for dynamic etching, they are now being spun on the Floturn lathe which flows material in a cold state. Severity of contour, from .080-in. wall thickness at the small end to .040 at the large end, is held by the controlled forming wheel. A stylus automatically follows a template pattern to control the contour and wall thickness.

Now, from results on initial runs, rejects are expected to run less than a tenth of one per cent of the spun cones. A far cry from the 18 out of 20 sent back for rework and planishing (smoothing out of wrinkles)!

The same method was put to use on a spares order for F-102 tip tail cone fairings to save the division over $5,500 in labor and material and 1,375 manhours on the average number of 500 ordered each year.

One pass on the Floturn and one anneal—heat treatment to soften metal to forming condition, saves almost three hours per part. Before, it took six spinning operations and six anneals to shape a cone before the cone was sent to the drop hammer for final form.



FAST FORM — W. K. Richeson, drop hammer operator, takes F-102 tail cone out of die after final form. Three hours per part are saved by spinning cones on Floturn.

Numerical Control Short Course Set

A short familiarization on numerical control will be given selected GD/Convair personnel next week by John A. Moorhead Associates, industrial training specialists and management consultants.

"The Users Course in Numerical Control," is scheduled for April 14-15 in the Bldg. 5 engineering auditorium. Attendees will be divided into two groups for morning or afternoon sessions, three hours each day.

Department heads have been asked to send names of persons selected to attend the course to educational services office, Bldg. 22, mail zone 3-60, by this Friday (April 10).

Pomona Adds New Computer

Expansion of the analog computer facility at General Dynamics/Pomona took a major step forward last month with addition of two new computers. A third new computer is scheduled to be installed about July 1.

Demand for analog computing services reached such a high level last year that use of an outside computing center was required to provide adequate capacity. Around-the-clock, three-shift operation has been "normal" for the GD/Pomona computer laboratory since 1961.

J. L. DeDiemar, computer laboratory section head, attributes the recent high in activity to an increased emphasis on dynamic design and system simulation in the division's various missile programs.

Addition of the three PACE (precision analog computing equipment) computers built by Electronic Associates, Inc., is an important phase in the computer laboratory's modernization program. Long-range plans call for a 50 per cent increase in computing capacity as well as added capabilities to satisfy the new applications in design simulation.

Save Materials—Don't Throw Your Job Away

GD/ELECTRONICS' CHARACTRON GETS NEW CAPABILITIES

New capabilities have been developed by General Dynamics/Electronics-San Diego for its versatile cathode ray tube, the CHARACTRON® Shaped Beam Tube.

The tube now can be operated in three different modes: character shaping, raster scan, and spiral scan. By sharing tube time, the three modes can be presented alternately on the tube face at a flicker-free rate which makes it appear to an operator as though all the data were presented simultaneously.

In the character shaping mode, all alphanumeric data are presented using the character-shaping principle. In this technique, an electron gun extrudes a beam through selected characters and symbols etched into a matrix within the neck of the CHARACTRON® Shaped Beam Tube. When the shaped beam reaches the tube face, the selected character is reproduced on the phosphor coating with extremely good resolution.

Raster and spiral scanning is accomplished by projecting the electron beam through a special aperture in the matrix which permits all electrons in the beam to be used for spot writing. In the raster mode a high resolution video picture of 400 lines is possible. The spiral scan is also high resolution, operating at a 1,000-line rate.

As a result, one tube can present a video picture, a radar report, and characters and symbols with shaped beam resolution in a single, combined display.

In operation, the character mode is allocated 2½ milliseconds for 100 characters, 12½ milliseconds for a complete spiral scan and 25 milliseconds for a complete raster. This permits all of the images to be repeated at a rate of 25 repetitions per second. By using the proper phosphor, a bright, flicker-free, combination display results.

Greenling Launched; Secy. Nitze to Talk At Commissioning

Electric Boat division of General Dynamics launched the nuclear attack submarine Greenling last weekend at its Groton, Conn., shipyard and commissioning of the Polaris submarine Daniel Webster is scheduled for tomorrow (April 9).

Rear Adm. Roy S. Benson, Assistant Chief of Naval Operations/Director of Naval Administration, was the principal speaker at the Greenling launching. Sponsor was Mrs. Henry C. Bruton whose husband, a retired Navy rear admiral, commanded the World War II submarine Greenling.

Principal speaker at the Webster commissioning will be Secretary of the Navy Paul Nitze. The Webster, launched a year ago, is the 18th Polaris submarine to join the fleet.

GD/E's Cal Franklin Earns Top Award

(Continued from Page 1)

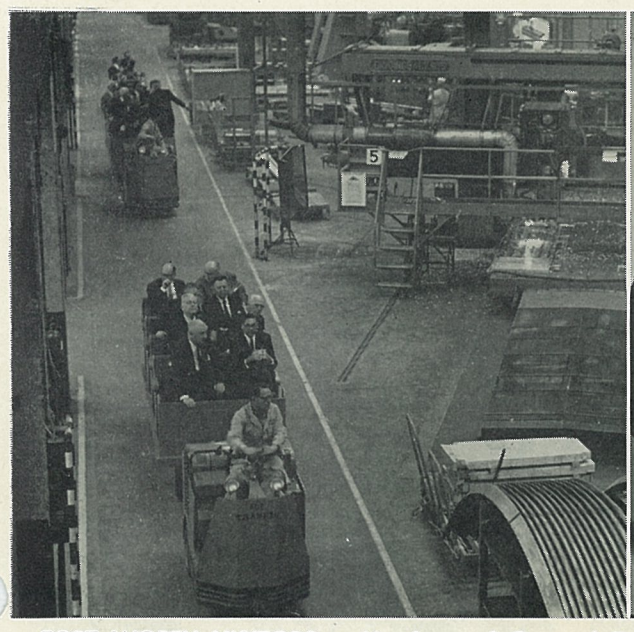
erans. The other, revising procurement requirements of electronic plugs, will save about $459 a year.

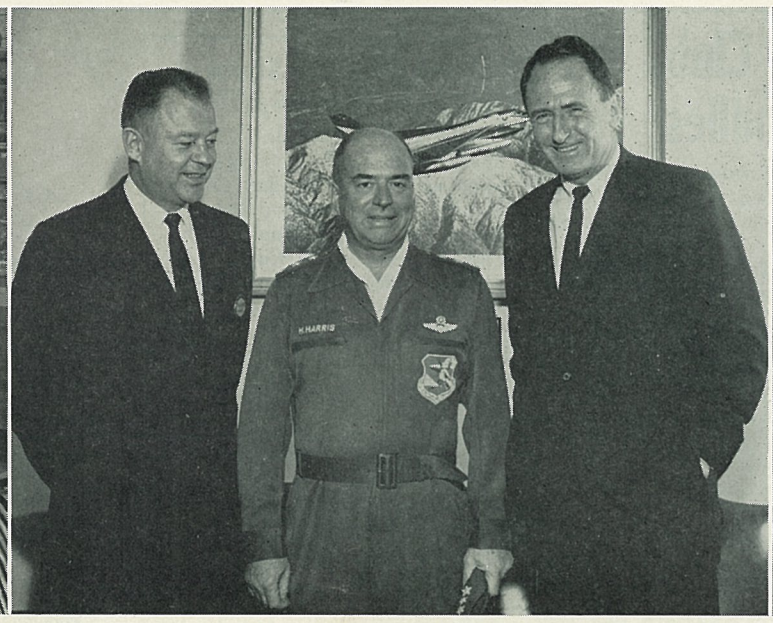
Lanyon, production analyst, submitted a CIP eliminating application of drawing change letters on electronic parts flow tags. This will save 1,560 manhours and $5,805.

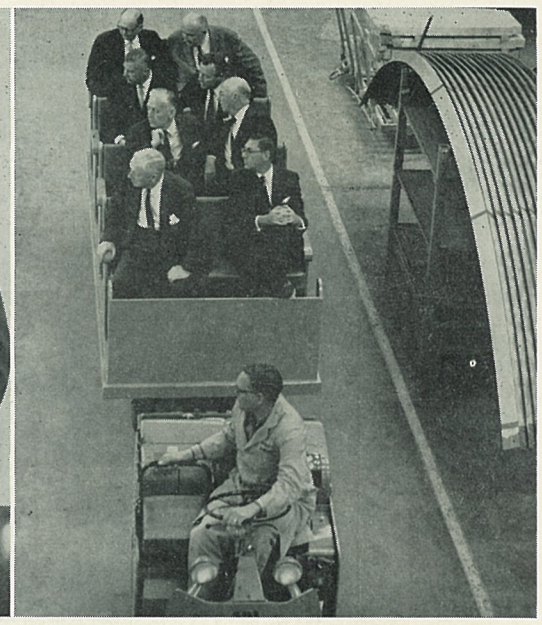
Ex-305th Commander Named to New Post

Col. Frank L. O'Brien Jr., former commander of the 305th Bomb Wing, has been named chief of staff for the Second Air Force.

Colonel O'Brien relinquished his command at Bunker Hill AFB last year after suffering a mild heart ailment. He had been commander of the 305th since its arrival at Bunker Hill in 1959.







FORT WORTH VISITORS — Members of General Dynamics Corporation Board of Directors, meeting at GD/Fort Worth division recently, toured plant facilities (photos at left and right). Lt. Gen. Hunter Harris, vice commander in chief of Strategic Air Command, center, also was in Fort Worth at time and posed with Roger Lewis, General Dynamics president, and Frank Davis, GD/FW president. Directors toured GD/FW production facilities and viewed F-111 progress.

'Tree-Hopping' B-58 Praised

A "profile" mission aboard a B-58 is depicted in Francis Vivian Drake's article about the Hustler, "The Bomb Carrier Nobody Can Stop," appearing in April issue of Reader's Digest.

The article was also subject of a television documentary, "All America Wants to Know," including footage filmed at GD/Fort Worth.

In the article, the author claims the B-58's "tree-hopping" penetration capability will keep the Hustler a deterrent threat even if Russia develops an anti-missile.

"It takes eight years to develop a new bomber from drawing board to runway," the article concludes. "But we still have all the tools for the B-58 production line and could rapidly produce reinforcements for this magnificent weapons system.

"We could assure ourselves that if effective anti-missile defenses are perfected by the Russians they would not leave us helpless to deter attack by certain retaliation."

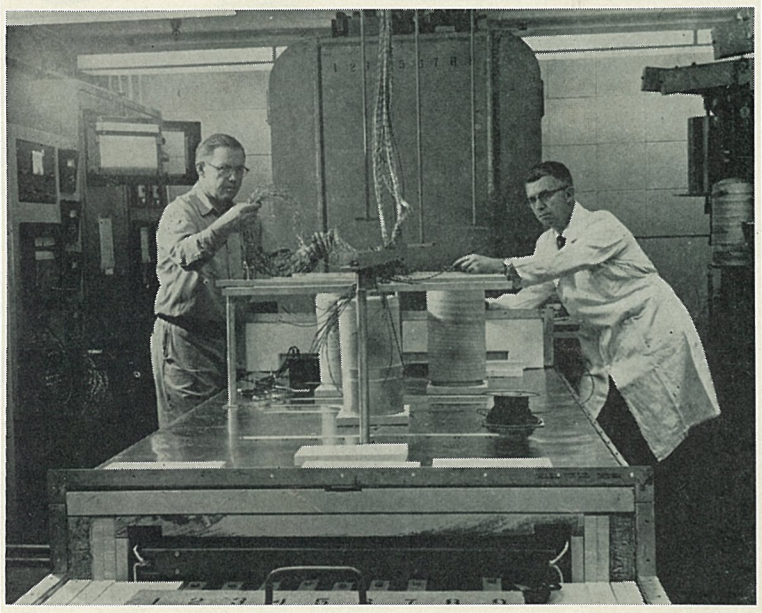
Societies to Hear Two GD/FW Speakers

Two GD/Fort Worth employees will speak before local professional organizations this month.

Adolph F. Moravec, chief material systems and audit, will speak on "How Can the PERT/Time/Cost Technique Help You?" before members of Institute of Electrical and Electronic Engineers at 7:30 p.m., April 14.

A talk on "Incentive Contracting" will be given by K. M. Jackson, contract analyst, before the National Association of Professional Contracts Administrators at 6 p.m., April 20 at Naval Air Station in Grand Prairie.

SAFE — John Diezsi, GD/Pomona turret lathe operator (Dept. 51), is firm believer in safety glasses after recent close call. Diezsi's right eye was saved when tap broke and fragment hit glasses.



TEST SETUP — W. M. Parker, GD/Convair metallurgist (right), and Charles Lager, Dept. 25 electrician, in last stages of installing Convair-designed equipment which will measure "creep" of metals in advancd studies for NASA.

Test Equipment Will Measure 'Creep' of Metals at High Speed

Equipment designed and built by GD/Convair for advanced investigation into "creep" of metals is now undergoing calibration and preliminary checkout following installation in the division's materials and processes laboratory.

(Creep is a condition in which metals elongate. It is encountered during prolonged stress and high temperature such as associated with Mach 2 and faster flight.)

The study is a continuing program for National Aeronautics and Space Administration's Office of Advanced Research and Technology, Washington, D.C. The initial study contract was awarded in late 1962.

The multiple station creep test machine will be capable of measuring low creep rates in the range of temperatures common to supersonic transports, said C. W. Alesch, GD/Convair project engineer on the program.

"Supersonic flight at speeds in the Mach 2 and 3 range result in the generation of airplane skin temperatures ranging up to about 650 degrees F. This condition requires materials which can maintain good strengths at these high temperatures and which, at the same time, do not expand excessively when they are heated through large temperature gradients, or rapidly transmit large amounts of heat from exterior to interior airplane structures," Alesch continued.

"In the presence of elevated temperatures and stresses which are effectual throughout appreciable periods of time, metals elongate and exhibit creep characteristics. Creep deformations result as a product of the time, temperature, and stress variables, and in view of the extremely long times involved in supersonic transport life expectancy (from 30,000 to 50,000 hours), such deformations are of significant importance."

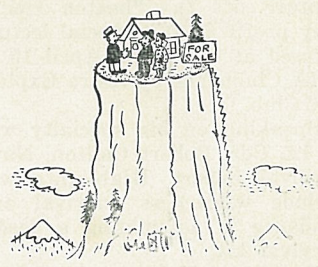
Until now, there has been no means of measuring the very low rates of creep which appear in threshold regions (at the point of permanent elongation), or of accumulating creep data simulating the long periods of time associated with supersonic transports. In fact, it could take as long as 5 to 6 years, by using standard equipment, to gather sufficient information to assure integrity of materials destined for use in supersonic vehicles.

"In consideration of the magnitude of the problems associated with the admission of creep into design, the 'onset of creep' stress concept envisions design at stresses at which creep is not a factor, and thus permits design and design verifications to proceed without major technical modification," continued Alesch in explaining the importance of acquiring accurate creep data.

The GD/Convair creep test machine, built by plant engineering to design engineers' specifications, can accommodate as many as 18 test specimens at one time—two 20-inch specimens to each of the nine stations in the electrically-heated chamber.

Combinations of stress and high temperature can be applied for as long as 10,000 hours.

Metals to be tested in the current study include three titanium alloys, four types of stainless steel, one maraging steel. Initial testing will probably get under way by the end of this month with W. M. Parker, senior metallurgist of materials and processes lab, in charge of test operations.



"Another advantage, you won't be troubled by a lot of salesmen."

Pomona Pursuing Study Of Metal Powder Parts

Use of metal powder as a raw material in production of missile parts is being studied at General Dynamics/Pomona in relation to cost reduction efforts.

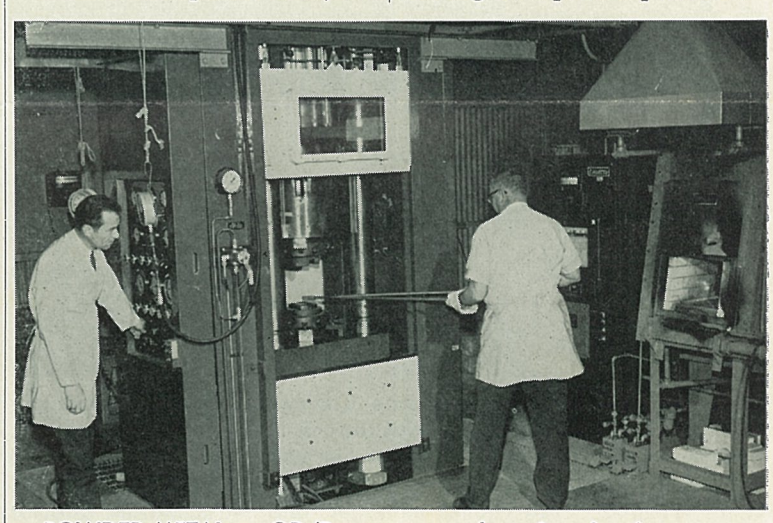
Work being done by W. N. Pratt, senior engineer, under direction of A. M. Murphy, supervisor of manufacturing development (Dept. 26), is expected to result in parts with good physical properties made by a "born to shape" concept.

Processes employed in making parts by molding in high speed presses to shape and size followed by heat treatment are basically economical; however, current studies involving new concepts seek to improve manufacturing methods.

Recent development work, oriented to increase physical properties, has resulted in increasing tensile strength of 4640 steel in the heat treated condition about 10 per cent.

Increases in strength were accomplished by forging hot preforms of 4640 steel powder in the General Dynamics Dynapak. The resulting, fully dense forging, had no flow lines indicating isotrophic characteristics.

Since only a few metallurgical bonds are formed in the hot porous preforms, forces necessary for forming and densification are only about half those needed for forging a solid bar of the same chemistry to shape. Lower forces result in longer die life when working with powder preforms.



POWDER METAL — GD/Pomona manufacturing development engineers are seeking improvement in methods used in producing parts from metal powder. Senior Engineer W. N. Pratt, who has been conducting powder metallurgy studies, transfers heated preform of 4640 steel powder to Dynapak high speed press. At controls is E. G. Freehauf, manufacturing development engineer.

GD/E-Rochester Demonstrates Compact Communications Unit

GD/Electronics - Rochester division's compact self-powered electronic communications unit, known as "INTRA-POWER," is being demonstrated at Eastern and Middle-Western military installations east of the Mississippi River during a two-month tour.

The transportable communications system is light in weight, compact in design, and equipped with self-contained primary power. The single small transportable shelter, with adequate internal space for an operator, occupies less than a third of the cubic footage of comparable equipment in current use.

Members of the GD/E communications products staff, under direction of George M. Benas, began the demonstration tour at Griffiss Air Force Base, Rome, N.Y., on Feb. 26, and will probably wind up at the last stop at Wright-Patterson AFB, Dayton, Ohio, in a couple of weeks.

Others involved in the current demonstration are J. J. King, F. R. Heyner, P. E. Brandt, G. M. McNeal, H. B. Leake, O. S. Smith, W. G. Alspach.

INTRA-POWER — Ron Torrelli of GD/Electronics-Rochester is shown inside communications unit during demonstration.

Facilities of Astro Health Club Open to All Dynamics Families

An open invitation to all San Diego-area General Dynamics (Convair and Electronics) families to enjoy equal privileges in the new ARA Health Club was issued this week by Astronautics Recreation Association.

Located in the ARA Clubhouse adjacent to Astronautics, the Health Club features a program, facilities and equipment comparable—or superior—to those offered by commercial health clubs.

But rates are only a fraction of those charged by commercial firms!

Individual membership for employees only is $12 per year. Family memberships are $18 per year. The latter covers husbands or wives and all children 12 years of age and older.

Facilities are in a modern, attractively decorated center measuring 60 by 32 feet, complete with wall-to-wall carpets and full-length mirrors. Equipment available is extensive and includes late model weights, vibrators, press machines, etc. Locker facilities are provided along with showers.

In addition, a new sauna (steam bath) will be completed in the near future.

Membership entitles the holder to full use of all facilities.

More important, it also includes a personalized physical conditioning program supervised by experienced and qualified instructors for both men and women.

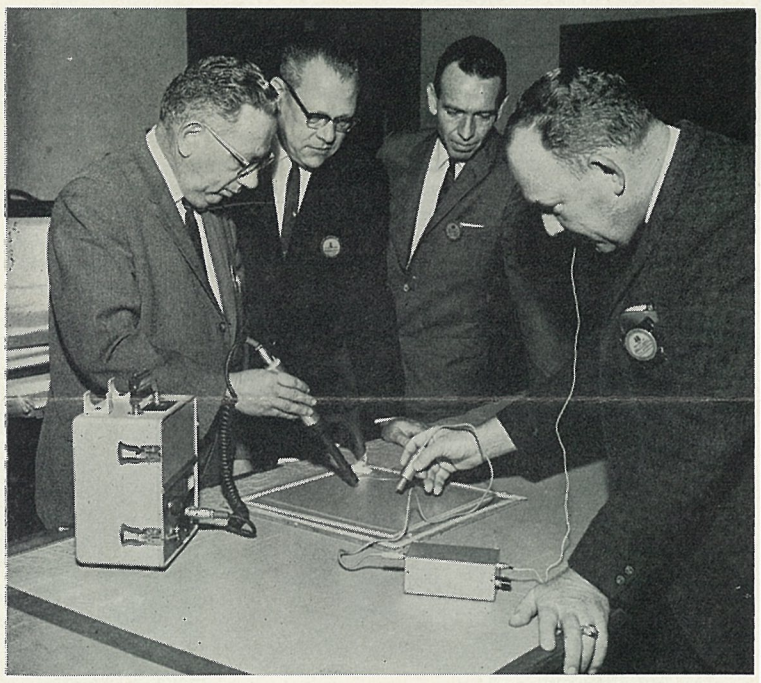
These professionals schedule a private interview with new members. Each member is analyzed for conditioning deficiencies and a full program is planned to correct problem areas. Instruction follows in the proper use of all equipment. Periodic interviews follow as the member progresses with his personalized exercise plan.

Operating schedules, subject to revision as necessary, now include "for men only" use of the facility from noon to 10 p.m., Monday, Wednesday and Friday. Tuesday and Thursday (10 a.m. to noon, and 4 to 7 p.m.) is set for women only. Families (both men and women) enjoy use of the facility from 7 to 10 p.m. on Tuesday and Thursday and from 10 a.m. to 5 p.m. on Saturday.

Youngsters 12 through 15 must be accompanied by a parent when participating in any program.

In the "study stage" at present is a daytime baby sitting service.

Employees interested in taking part in this program are invited to sign up by calling in person at ARA Clubhouse from noon to 10 p.m., Monday, Wednesday or Friday.



LEAK "LISTENING" — George Covington (right), GD/Convair manager of quality control, proves that his home-built $20 ultrasonic "sniffer" can ferret out sounds of air leaks as well as expensive purchased equipment, operated by Harry Rote, plastics foreman. H. P. Williams, value control manager, and W. J. Martin, director of reliability, look on.

Electronic Ferret

Home-Built 'Sniffer' Sniffs Just as Well as $900 Device

All thoughts of value control and cost reduction aren't left at the classroom door.

When George Covington, GD/Convair manager of quality control, took a look at $900 electronic equipment for detecting minute air leaks in the vacuum bagging process for C-141 fiber glass leading edge buildup, he remembered a simple "do-it-yourself" design for just such a device published months ago in an electronics magazine.

Digging through his old files and pulling out his "grab box" of parts and pieces, he put together a small electronic ultrasonic "sniffer" that can "hear" tiny pinpoint leaks as plainly as the expensive machine. Total cost: $20.60 for ultrasonic coils and transducer and four evenings of homework. Another $15 will go into an amplifier to magnify the ultra high-frequency sounds.

Covington said that such "sniffers" are extremely valuable in many areas throughout the plant. They are the only sure means of finding minute air and gas leaks in hoses; determining if bearings, especially small ones, are defective; or locating leaks in any vacuum assembly.

"One tiny leak unnoticed causes a complete failure in the curing process and can guarantee rejection and scrapping of an entire leading edge, for instance, at great loss to the division," he said.

Recently, the purchased equipment enabled field operations to find a wing fuel tank leak which couldn't be located by many flushings and much loss of fuel.

Covington's little home-built sniffer, just 3x5x2 inches—less than the size of half a brick and much lighter, can be tucked in a man's pocket and easily carried along for use anywhere.

Entries Close April 17 For IRC Tournament

Entries for the 22nd annual Industrial Golf Tournament scheduled May 2, 3, 9 and 10 at Torrey Pines (So.) and Balboa will be accepted through noon, April 17, at GD/Astro employee services offices at all San Diego sites.

The event is planned as match play by handicap flight. Entry fee is $3.50, of which ARA will pay $2. Entrants pay $1.50 plus greens fees.

Garden Clubs' Show Postponed to April 19

ARA-CRA Garden Clubs' Spring Rose Show, originally planned for last Sunday (April 5), has been rescheduled for April 19 in Balboa Park's Floral Association Bldg.

Other details remain unchanged. Entries will be accepted at the door from 7 to 11 a.m. The show will be open to the public, without charge, from 1 to 6 p.m.

$115 Pot Eludes Trap Shooters

Easter Day activities may have cut down the number, but not the enthusiasm, of trapshooters turning out for CRA-ARA Gun Club's Troy trapshoot March 29.

Closest any of the 17 marksmen came to breaking 50 straight for the $115 pot were Howard Jacklin, formerly GD/E, and Bill Shrode of Fallbrook who tied for high score with 48.

Jacklin dropped one at 16 yards and dropped his 22nd bird shooting from the 24-yd. line. Shrode shot 25 straight at 16 yards and 23 from the 25-yd. line.

Money winners, taking home $4.25 each, were Shrode, Bud Palmer of Los Angeles, and George Skurlar (wife at Convair). All three scored 25 in 16-yd. event.

The big prize has been increased $127.75 for the next Troy event, set for April 26 at Gillespie Field Range. The monthly trapshoots, formerly held Friday evenings, are now scheduled on the last Sunday of each month, said CRA Commissioner Jack Swank.

Next Gun Club event is a registered skeet shoot this Sunday (April 12), starting at 9 a.m.

Q-C Meeting Deadline Near

General Dynamics members of San Diego Section, American Society for Quality Control, have until this Friday to make reservations for the April 13 dinner meeting at Town and Country Hotel.

"Quality Control Concepts in Competitive Markets," will be discussed by J. H. Snyder, chief inspector, Pacific Southwest Airways. Sponsor of the monthly session is the San Diego Contract Management District, USAF.

Social hour is set for 6 p.m.; dinner, 6:30; program at 8. Tickets are $3.50 each.

For reservations call: Frank Moore, GD/Convair Plant 1, ext. 663; L. B. Settle, Astro main plant, ext. 2806; Bill Huot, GD/Electronics Plant 1, ext. 2649; Ivan Kemper, GD/E Plant 2, ext. 36.

GD/Astro Engineer Chairs Tool Society

C. E. Roye, GD/Astronautics engineer, was installed last month as chairman of the San Diego Chapter of American Society of Tool and Manufacturing Engineers.

Among other officers installed at the installation dinner in the Town and Country Hotel was G. A. Grossaint, also of Astro, third vice chairman.

Explorers Will Hear 'Off Beaten Track' Talk

As vacation time approaches, GD/Astro employees planning to venture off the "beaten track" may profit from a special lecture offered at 7:30 p.m., April 15 in ARA Clubhouse by Astro Explorers Club.

Speaking on his specialty will be Lt. Cdr. Robert Chilton, Navy survival expert. Highlights will include wilderness survival and guidance in assembling a desert survival kit.

Explorers Club members plan a rugged hike to Santa Rosa Mountains April 18 and 19.

Garage Workshop

Speed Tunnel Model Designer Builds Own 16-Knot Trimaran

Norman Cross of GD/Convair, and his family, step into "another world" of Cross' own making, every weekend as they unfurl the sails of their white and blue trimaran "Otro Mundo" and float away from everyday cares.

Cross, model designer in Convair's low speed wind tunnel, spent four months and some 800 hours building the 24-ft. three-hull vessel in the garage of his Bay Park Village home.

His original design called for fir frame with ¼ and ⅜-inch plywood skin encased in fiber glass. The boat, bearing the Spanish equivalent for "another world," has an overall beam of 14 feet with the 20-ft.-long outriggers removable so that it can be trailed.

The 30-ft. fir mast carries 240 square feet of sail. A 4-hp. outboard motor provides auxiliary power. The cabin sleeps three—just right for Cross, wife Delia, and 14-yr.-old daughter Claudia.

The light (1,800-lb.) boat is practically unsinkable, said Cross, and needs no ballast.

"It is very fast for this type of boat," Cross boasted proudly. "We've had it up to 15 or 16 knots in good sailing conditions and have sailed in open seas to Oceanside and back so we know it is capable of coastal cruising."

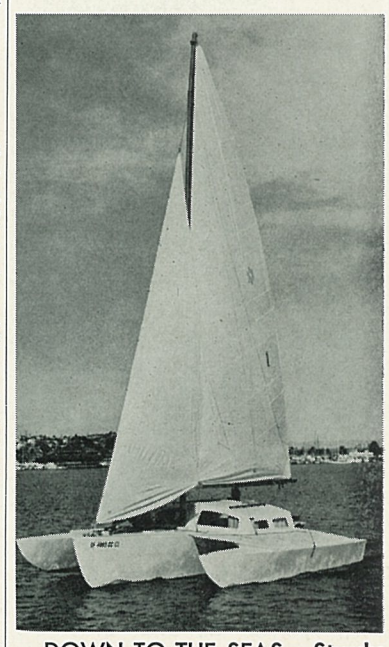
Cross figures that he spent around $1,200 for materials that went into the sturdy craft, less than a third of the value of such a boat, if it could be purchased on the open market.

The Convair model designer is no novice in the field of boat designing, or for that matter, sailing. For years he has owned and sailed catamarans and trimarans, but "Otro Mundo" is the first he has built himself to his own concept.

Years ago he, with several other Convair engineers, designed the CRA 26-ft. sailboat. His plans for a 36-ft. catamaran were published in the April 1963 issue of Popular Boating Magazine. And at the moment, two Astro men, Dave Moss and Chet Olson (NASA rep based at Astro), are building trimarans to Cross designs.

Now he is deep in plans for building a larger and roomier 30-ft. trimaran for more extensive family sailing jaunts.

He is willing to share his experience and designs with other amateur builders. Cross is at Convair Plant 1, ext. 2147.



DOWN TO THE SEAS—Sturdy three-hull "Otro Mundo," 24-ft. trimaran was designed and built by GD/Convair's Norman Cross. —Photo by Lawrence Hartmann.

Three Chances Left To View Astro Play

Only three opportunities remain to see Astro Players' production of "The Curious Savage," the John Patrick comedy starring Lillie Mae Barr.

Curtain goes up on final performances tonight (April 8), April 10 and 11, at 8:30 a.m. in ARA Clubhouse.

General admission tickets good any night cost $1; reserved seats (specific show, front section) are $1.50, at GD/Astro employee services outlets or at the door.

The three-act play is directed by John Cone.

Business Women's Society Will Meet

A GD/E wife, Mrs. Marilyn Junkerman, an expert grapho-analyst, will be main speaker at the April 14 dinner meeting of American Business Women's Association at Harold's Fifth Ave. Restaurant.

Mrs. Junkerman's husband, Steve Junkerman, is in GD/E quality control.

Cecile Hoyle, also of GD/E, ABWA program chairman, will introduce the speaker. Interested GD women may contact Mrs. Hoyle at Plant 1, ext. 634, for information on the business women's group.

SALVAGE YARD OPEN SAT. A.M.

GD/Convair salvage yard at Plant 1 will be open to employee sales Saturday mornings—April 11 and 25. All General Dynamics people are eligible to "shop" upon presentation of ID cards.

Sports & Recreation

Teen-Agers to Lead CRA Runners On New Route to Sand Dunes

Teen-agers will lead CRA Road Runners over a new route April 10-12 when Convair trailerites head for the sand dunes near Glamis.

They will travel by Hwy. 80 to El Centro, take Hwy. 99 to Brawley, go east approximately 20 miles to the campsite. Directions will be sent all members.

Carol Perkins, daughter of Mr. and Mrs. Harold Perkins, and John Peterson, son of Mr. and Mrs. Ivar Peterson, head the teen-age arrangements committee. They have planned a hamburger fry for the Saturday potluck and a wiener roast later in the evening.

Each family is reminded to bring along firewood for the campfire and water for their own needs, as well as a good supply of wieners. Chemical rest rooms are available at the camping location.

CRA Commissioner Ralph East expressed his appreciation for the travelogue presented at the March meeting by Mr. and Mrs. Alan Essery on their recent European trip. Approximately 50 Road Runners and guests viewed the movies.

Next club meet is set for next Thursday (April 16) at 7:30 p.m., Gillespie Field Clubhouse.

STARS ON ICE — Ed Pinger (Dept. 6) and Naomi Johnson, wife of Pete Johnson (Dept. 6), practice routine for fifth annual Arrowhead Figure Skating Ice Show in front of mural painted by Mrs. Johnson on wall at Ontario Ice Bowl. Both are members of GD/Pomona Ice Skating Club.

Annual Style Show Set For El Cortez

Fashion-minded men and women at Convair and GD/E have a couple of weeks yet to get their tickets to IRC's annual style show April 22 in El Cortez Hotel.

"Vacation Time Fashions" will be modeled in the Caribbean Room at 7:45 p.m. Styles are presented by El Cortez Fashion Quarters and El Cortez Men's Shop. Molly Morse will describe costumes.

Entertainment, prizes, refreshments will round out the evening —all for $1.30 each.

Tickets are on sale at employee services outlets at GD/E Plants 1 and 2, and Convair Bldg. 32.

IRC Golf Tourney Deadline April 16

Golfers at Convair and GD/E have until April 16 to sign for the annual IRC golf tournament.

This year's links event is set for the weekends of May 2-3, 9-10.

Convair golfers may call Ken Wulfemeyer, ext. 1705, for starting times. Entry fee is $3.50 with greens fees extra.

GD/E participants get off cheaper with part of the entry charge subsidized. They will have to pay only $1.50 each to enter.

GD/E entries are being taken by Don Jackson at Plant 2, ext. 2193, and Bud Cooper, Plant 1, ext. 1136.

Shop Foreman Named For Garage Facility

CRA Sports Car Club has named a shop foreman to assist Fred Thatcher, shop superintendent of the club's garage facility at Gillespie Field.

Bob Weissinger of General Atomic, club member, will be on duty Saturdays from 8 a.m. to 5 p.m., said Bob Chillo, Sports Car Club president.

Weissinger will oversee the facility operation, work assignments, and maintenance of the garage.

The maintenance shop, which is steadily growing in popularity, was opened last May as a convenience to club members.

Appointments for garage times should be made in advance. Weissinger may be reached at General Atomic, 459-2310, ext. 1182, or at his home phone, 459-5414.

Coin Club Will Cut 11th Birthday Cake

CRA Coin Club members will cut their 11th birthday cake next week (April 16) when they observe the founding of the numismatic group.

Raffle of a 1909D half-eagle, $5 gold piece worth approximately $27.50 on today's market, will highlight the evening. A door prize also will be awarded.

Meeting time is 7:30 p.m. in the Convair main cafeteria, Pacific Hwy.

CRA Calendar

(Convair Recreation Association has some 30 activities in operation for Convair and Electronics people. For information call CRA headquarters, ext. 1245.)

★ ★ ★

AEROMODELERS — Annual free-flight rubber-powered scale contest tentatively set for last of April. Call Don Larsen, ext. 1983, or Larry Peterson, ext. 794, both Plant 1, for information. Flying sessions Saturday and Sunday mornings, 8 a.m. to 1 p.m., Clairemont Mesa Flying Site.

BOWLING — Entries still open for annual CRA plant championship tournament, May 9-10, 16-17, Pacific Recreation. Forms at CRA office, Bldg. 32, Plant 1.

BRIDGE CLUB — Weekly play suspended until further notice. Call ext. 1245, Plant 1, for information.

CAMERA CLUB — Joint CRA-ARA meeting April 19, 7:30 p.m., Photo Arts Bldg., Balboa Park.

COIN CLUB — Anniversary meeting April 16, 7:30 p.m., Convair main cafeteria, Pacific Hwy.

GARDEN CLUB — Annual Spring Rose Show date changed from April 5 to April 19.

GLIDER CLUB—Meeting second Saturday of month, 8 p.m., Golden Hill Playground Recreation Hall, 28th & A Sts. Call Don Larsen, ext. 1983.

GOLF — Entries open today (April 8) until April 10 for CRA tourney weekend of April 18-19, Bonita Valley Country Club. Call ext. 1705, Plant 1, for starting times. Deadline for entries in IRC tourney (May 2-3, 9-10) is April 16. Convair golfers call ext. 1705. GD/E entries taken by Don Jackson, Plant 2, ext. 2193; Bud Cooper, Plant 1, ext. 1136.

GUN CLUB—Registered skeet shoot April 12, 9 a.m., Gillespie Field Range.

ICE SKATING — Thursday ice skating sessions, Mission Valley Ice Plaza, 6:30-8 p.m.

MODEL RAILROAD — Work nights, Fridays, 7:30 p.m.; open sessions, Sundays, 1-4:30 p.m., House of Charm, Balboa Park.

MOVIES — Reduced prices for General Dynamics people at State Theater, Euclid and El Cajon Blvd. General admission: adults, 75¢; children, 25¢.

PISTOL CLUB — CRA club shoot April 12, 9:15 a.m., San Diego Police Pistol Range, Federal Blvd. and Home Ave.

RADIO CLUB — Next meeting Thursday (April 16), 8 p.m., Harbor Drive club headquarters.

ROAD RUNNERS — Weekend outing April 10-12 to sand dunes near Glamis. Meeting April 16, 7:30 p.m., Gillespie Field Clubhouse.

ROCKHOUNDS — Meeting April 9, 7:30 p.m., Gillespie Field Clubhouse.

ROLLER SKATING — Free skate night April 20, Skateland, Front and G Sts. Tickets at Convair and GD/E employee services.

SPORTS CAR CLUB — Atlas Rally VI, April 19.

SWIMMING — Free family swim night April 18, 7-9 p.m., Mission Beach Plunge. Tickets at Convair and GD/E employee services.

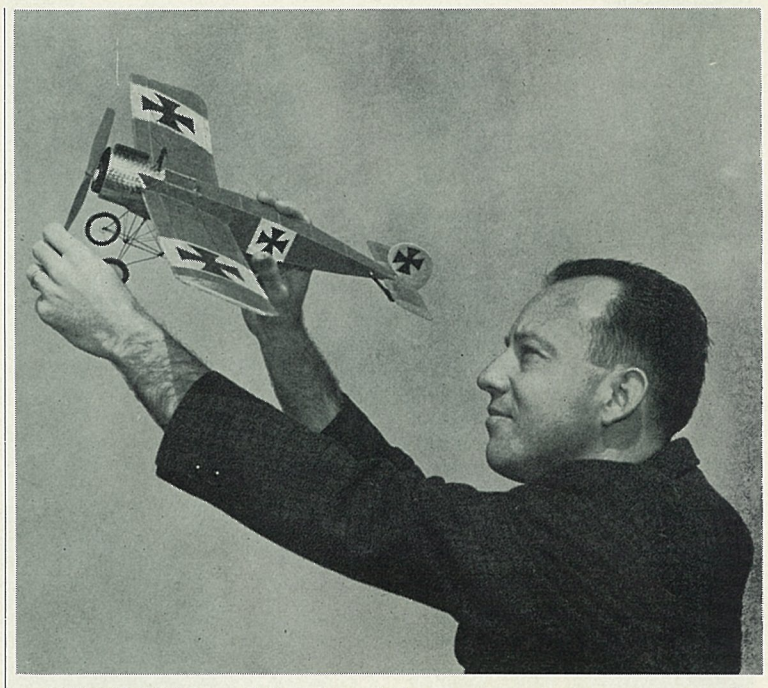
VOLLEYBALL — League play under way at Muni Gym, Balboa Park.

WATER SKI CLUB — Skiing weekends on Mission Bay on phone-call basis. Call Gene Sevigny, ext. 2701, Plant 1.

Registration Opens For Links Tourney

Registration opens today (April 8) for this month's CRA links tourney to be held April 18-19 at Bonita Valley Country Club.

Golf Commissioner Ken Wulfemeyer urges all Convair and GD/E golfers planning to participate to call ext. 1705 for starting times before entry deadline this Friday (April 10).



SHAKEDOWN — CRA Commissioner Don Larsen releases his rubber-powered model of Fokker EIII, first German fighter with synchronized machine gun used in early World War I days. Larsen hopes to beat 35-second record in Aeromodelers' coming indoor free-flight contest.

Model Flying Contest Set

Modeling enthusiasts at Convair and GD/E are busy designing, building, and adjusting their model craft in anticipation of CRA Aeromodelers' annual free-flight indoor rubber flying scale contest.

The inside flying meet is tentatively scheduled for later this month, said Commissioner Don Larsen. This year it will be held in a suitable Balboa Park building.

All General Dynamics employees and their children are eligible to participate with prizes going to best flights in both senior and junior divisions.

Both Larsen and Larry Peterson, club president, are eager to help in any way they are able. Both have plans of suitable models which are available to anyone wishing to build rubber-powered models for the contest. Or they will assist and advise those modelers constructing planes to their own designs.

Larsen may be reached on ext. 1983; Peterson, ext. 794, both Plant 1.

* * *

A large supply of 10x20-inch 2-S aluminum sheets, .005-in. thick, has been acquired by Aeromodelers for any Convair or GD/E modeler who needs such material.

It will be issued upon request at no charge, said Commissioner Larsen.

The aluminum sheeting is especially suitable for skins of model planes, cars, or boats; cowling on planes; doublers over balsa or tissue for strengthening; or simulated panels on boats.

Anyone needing this type of material may contact Larsen at ext. 1983, Plant 1.

Convair Wife Top Angler

A Convair wife, Mrs. Philip Boche, reeled in the prize fish to win the CRA Fishing Club's February award.

Her 3½-lb. large mouth bass was good for the $10 handed over by Commissioner Bob Menzie at the March club meeting.

Top fishermen for March will be rewarded at the April 21 potluck and business session, Gillespie Field Clubhouse.

Menzie calls attention to the CRA club's new policy, allowing associate members, not connected with Convair or GD/E, to join the fishing group upon payment of $2 yearly dues. Only restriction on associate memberships is noneligibility for monthly prizes. Otherwise, they enjoy full privileges of voting and may compete for button awards and overall trophies.

For information call Menzie evenings at his home phone, 281-8247.

Convair, GD/E Enjoy Free Swim Nights

Convair and GD/ families will get in the "swim" for free at IRC's monthly family night Saturday (April 18) at Mission Beach Plunge.

Through CRA arrangements, all Convair and GD/E people, and their youngsters, can enjoy the huge indoor pool at no charge from 7 to 9 p.m. each third Saturday night.

Tickets are on hand at both GD/E and Convair employee services counters.

GD/E and Convair Volleyball Teams Enter Tournament

GD/E and Convair teams entered in the IRC volleyball tournament played their opening games during the last week as league play got under way in Balboa Park's Muni Gym.

GD/E, playing in the National League, was matched against California State Employees Association boys in first night tilts April 1. Last night (April 7) the Hi-Lows from Convair met the Wreckers (City Park and Recreation Dept. team). Hi-Lows are in the American League.

Tonight GD/E has a bye and will meet Fire Dept. at 7 p.m. next Tuesday (April 14). Hi-Lows will play against Miramar on Wednesday (April 15), also at 7 p.m.

Team with the best won-lost record for nine matches will be league champ, said Pete Beyrer of CRA, in charge of the tourney. If two or more teams finish in a tie, a one match play-off will be held June 9 to determine the winner. First and second half winners will play one match (two out of three games) for the championship on June 10.

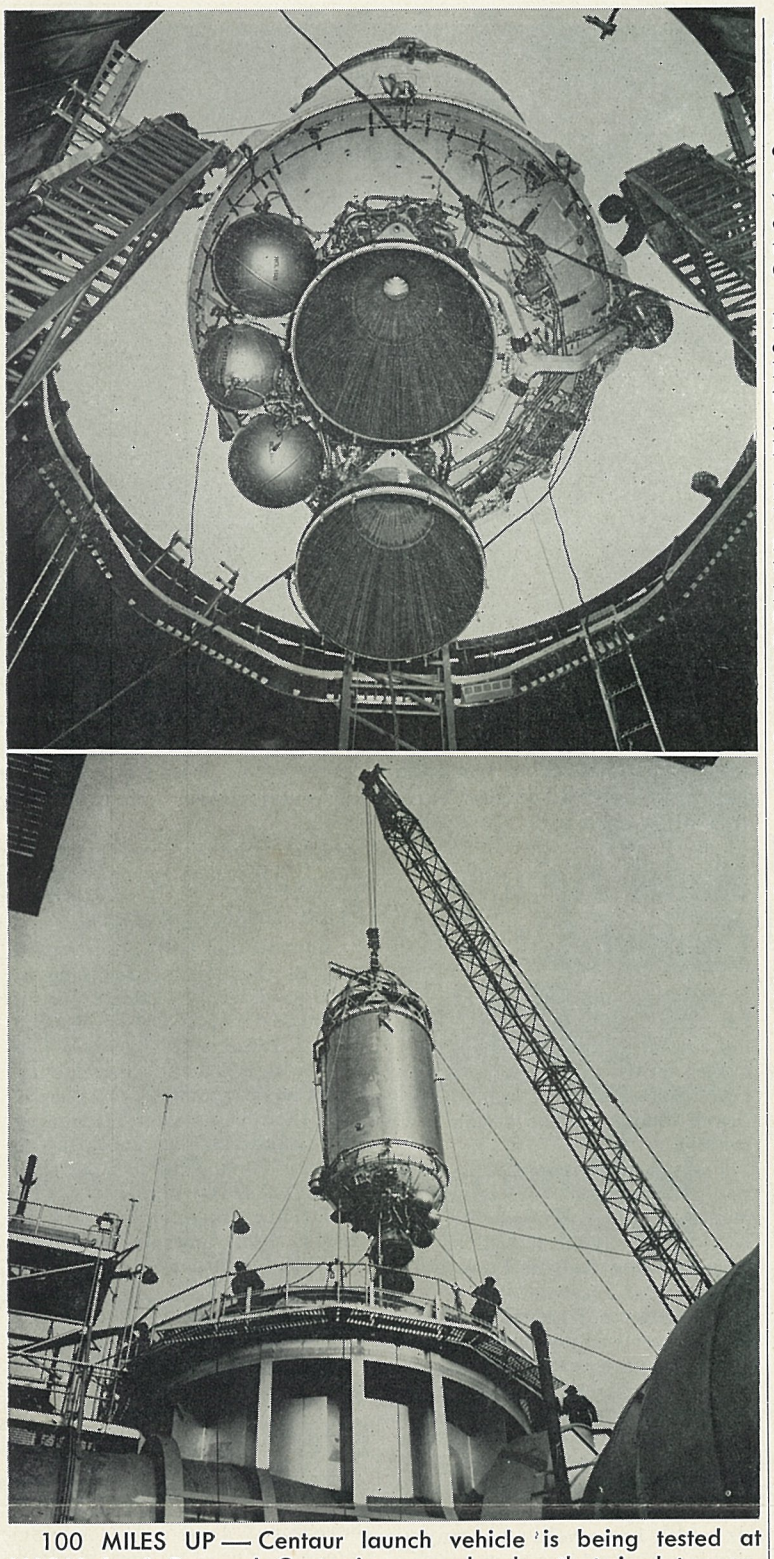
CRA Bridge Activity Halts Temporarily

CRA Bridge Club play has been temporarily suspended in the absence of a qualified director, reports Pete Beyrer of CRA headquarters. Frank Westphal, club president and director for several years, is no longer with the company. For information on possibilities of reorganizing the weekly duplicate bridge sessions, call Beyrer, ext. 1245, Plant 1.

Exchange Tickets Offer Reduction

Exchange tickets, allowing reduction in prices to professional boxing bouts at the Coliseum, 15th & E Sts., are available at GD/Convair and GD/E employee services outlets.

With the tickets, ringside admission is reduced from $3.50 to $2.50; reserve ringside admission, $2.25, a 75-cent reduction; and general admission $1, reduced from $1.50. Tickets are to be presented at the box office.



100 MILES UP — Centaur launch vehicle is being tested at NASA's Lewis Research Center in space chamber that simulates conditions at altitude of 100 miles. In lower picture, Centaur is lowered by crane, while, at top, vehicle is worked into position. Auxiliary propulsion, hydraulic, pneumatic and electrical systems are operated in space environment.

Centaur Space Vehicle Performs in Chamber

A GD/Astronautics-built Centaur space vehicle was installed recently in the newly-completed space power chamber at NASA's Lewis Research Center where it will make earth-bound "flights" at simulated altitudes of about 100 miles.

At the Cleveland, Ohio, facility, an elaborate pumping system will induce the vacuum of space within the chamber, while nitrogen panels are used to drop the temperature. Solar radiation will be simulated by banks of high-intensity quartz lights.

Under these conditions nearly all systems of the Centaur vehicle (6-A) will be tested, including auxiliary propulsion, hydraulic, pneumatic and electrical systems. Only propellant flow and actual engine ignition will be omitted.

The test series will permit NASA engineers, aided by a GD/Astro team, to study Centaur's performance in a space environment, checking such functions as guidance, autopilot, engine gimballing with cryogenics on board, and even the firing of attitude engines.

For Centaur 6-A, the space power chamber series is the second battery of tests to which it has been subjected. Previously, the vehicle was used for validation purposes at Cape Kennedy.

ASTRO ENGINEER NATIONAL WINNER

A GD/Astronautics research engineer, Dee Clinton Passey (Dept. 965-3) has just received word of victory in a national contest he won while studying at the University of Utah, Salt Lake City.

Passey won the Undergraduate Division National Award in a contest staged by the American Institute of Aeronautics and Astronautics during 1963. Final judging was based on papers presented.

Winning the Salt Lake City local contest, Passey went to Fort Worth for the Southwest Regional. He then sent his paper titled "An inertial range computing device for a small two-stage ballistic missile," to national headquarters in New York.

Passey will receive his award in Los Angeles in May.

He received both BS and MS degrees in electrical engineering in 1963, joining Astro last September.

NOVEL STRUCTURE TESTING RADOMES

An unusual structure designed and developed by General Dynamics/Electronics - San Diego engineers and technicians, is now being put to use in the testing of large radomes.

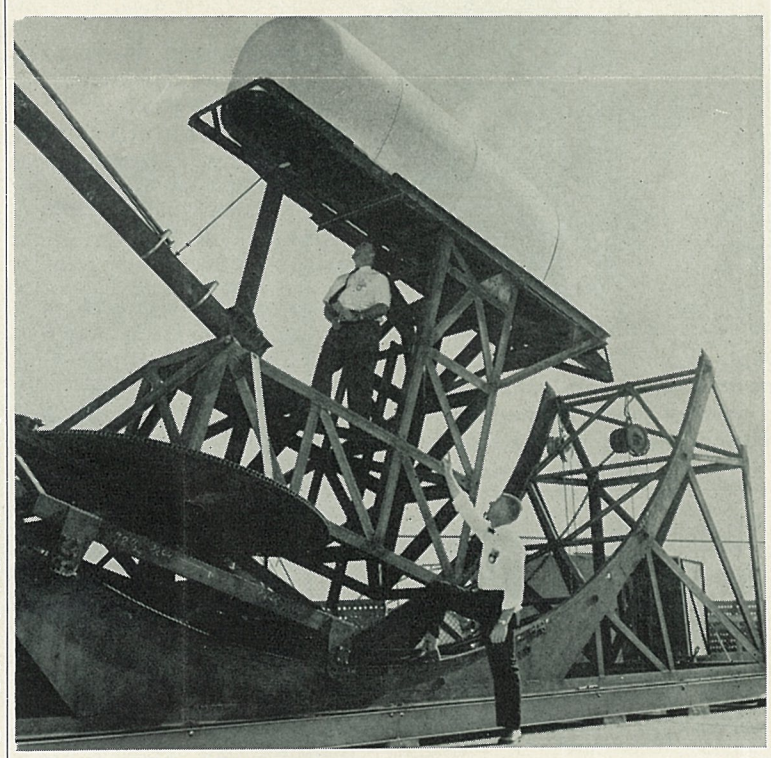
The device consists of two main parts: a support on which large radomes can be supported in many orientations relative to a fixed antenna enclosed by the radome, and a platform which can be positioned in an arc lying in a vertical plane.

The radome supporting platform can be rotated 310 degrees about an axis perpendicular to the platform. Thus, a wide range of azimuth and elevation positions can be obtained.

Traffic Supervisor To Chair Committee

J. W. Higgins, GD/Astronautics traffic supervisor, has been elected chairman of the rate and classification subcommittee of Aerospace Industries Association's Western Traffic Committee.

The AIA committee is made up of traffic managers of principal manufacturers of aircraft, missiles, spacecraft and components with factories in the west.



"SWINGING" PLATFORM — Unique structure developed by GD/Electronics - SD engineers for testing large airborne radomes is checked by H. A. Swanton, GD/E senior design engineer, and E. L. Rope, test engineer, during checkout of 17x4½x3-ft. radome.

Hot Development

'Tender Loving Care' Lavished As F-111 Wing Section Formed

Imagine wearing a $435 suit on the job and working only 15 minutes at a spell!

That's the "plight" of welders in GD/Fort Worth's Dept. 37 (high-temperature welding and machining) when hand-welding the F-111 wing carry-through section (pivot support fitting and wing pivot fitting).

But there's a catch. The expensive "suit" is a fire and heat-resistant asbestos unit. The 15-minute "work stint" is about the longest sustained period of time General Foreman E. G. Henderson thinks a man should spend in a "hot box." Reason: temperatures are kept at a constant 300 degrees F. throughout the hand-welding operation.

"We're using D6AC steel on this F-111 part," Henderson said. "It's tougher than conventional steel and must be welded at this high temperature to maintain its chemical integrity."

Sixteen hours of hand-welding are required on the big F-111 carry-through section. But this is only a fraction of the time Dept. 37 spends assembling, testing, drilling and reaming the vital F-111 part.

Overall, the complete job takes several weeks—and more "tender loving care" than Henderson has even seen put into a structural airplane part.

After bench assembling detail parts of the section in Dept. 37, the meticulous welding job is begun.

The section is placed on one of two large positioners which can be completely rotated vertically under an overhead automatic welder. The wing section is then enclosed in the giant hot box, a special 16-foot long, 8,900-pound steel container lined with a series of heaters.

"The hot box has removable panels," Henderson said. "Thus after the wing section is heated to 300 degrees F., it is rotated under the automatic welder, the panel removed, and the weldment made. This process is repeated until the bottom is welded entirely around the wing section."

Then comes the intricate hand-welding of inside parts. The hot-box top is removed, and the section is covered with an asbestos covering to maintain the constant 300 degrees F. temperature. Only area exposed is that relatively small section to be welded.

The operator dons an asbestos suit, and heavy heat-resistant gloves, and drapes himself in glass-impregnated blankets. He then goes to work making "expert welds" in an area hot enough to bake a cake.

To keep the operator relatively cool inside the heavy insulated clothing, air is blown inside his suit constantly through an air manifold system.

After welding, the big part is flushed, cleaned, sandblasted and given thorough magnetic-particle and X-ray tests.

Later, the piece is cleaned and given a final stress-relief heating at 1,250 degrees F. as insurance against shrinkage.

The carry-through section is then sent to a Fort Worth vendor for more intensive heat treatment.

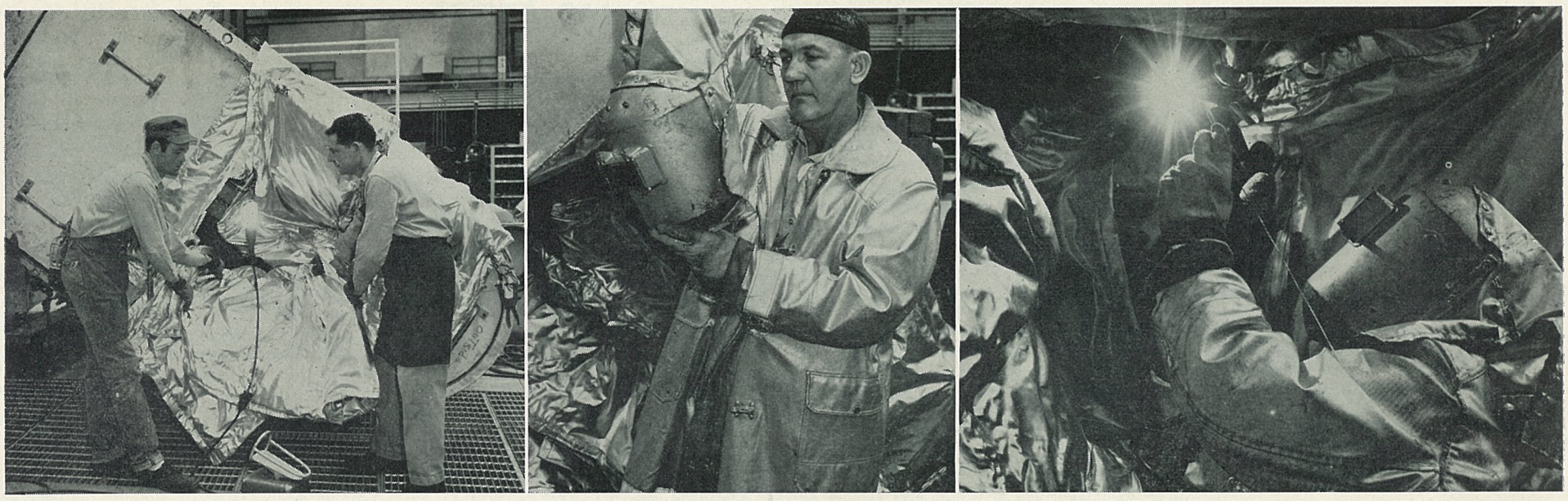
After being returned to GD/FW, the part is processed through machine shop, then shot-peened to make the section more uniform and to prevent stress corrosion.

Aluminum .004 to .006 inches thick, is sprayed on, and another chemical sprayed on to protect the aluminum coating.

The part is returned to Dept. 37 for complete drilling and reaming, an intricate process that will make new demands—including tapered holes—on workmen.

"This drilling is the most precise we've ever attempted," Henderson said. "Right now we're spending long hours in classrooms and workshops perfecting this one vital operation. We're bringing in experts to help us, and even experts to help the experts."

After drilling and coating inside, the carry-through section is ready for shipment to assembly —where it literally becomes a part on which the airplane's success hinges.



WARM WORK — In photo at left, GD/Fort Worth's Willis Moon Jr. and J. N. Cummins, metal fitters, ready small area of F-111 wing carry-through section — inside "hot box" — for hand weldment. Asbestos blankets help keep temperature at 300 deg. F. Center: E. J. Bundick, welder, dons special gear and (at right) carries out assignment in area "hot enough to cook biscuits." Air is blown into his suit through headpiece.

Payroll Purchase of Savings Bonds Strongly Endorsed

General Dynamics Corporation strongly endorses the following sentiments, expressed by Secretary of the Treasury Douglas Dillon and co-signed by national leaders:

"We . . . believe:

"That the strength and continued prosperity of the United States and of our cherished free enterprise system depend upon the degree of interest and participation of all our citizens, both corporate and individual, in the maintenance of our institutions and in the efforts to achieve an effective solution of our national problems;

"That the widespread public ownership of the national debt through purchases of United States Savings Bonds is essential to the sound management of our government's finances and to the stability of our currency;

"That systematic Payroll Savings in United States Savings Bonds has proved to be a most convenient and highly effective way in which the individual employee can invest not only in a better future for himself and his family but also in the future welfare and defense of his country;

"That this voluntary exercise of thrift helps secure the individual—as well as commerce, industry, and the nation—against adversity, and earns the participant a greater share in the abundance of America;

"Therefore we, who are among the stewards of free American enterprise, urge all employers and employees to join with us in cooperating with the government for our mutual good by providing leadership for the purchase of United States Savings Bonds through the systematic Payroll Savings Plan, promoting thereby the opportunity for all to enjoy a larger share in a greater tomorrow."

Roger Lewis
President, General Dynamics Corporation

GD

SAN DIEGO EDITION
(Serving GD/CONVAIR
and GD/ELECTRONICS)

GENERAL DYNAMICS
NEWS

Vol. 17, No. 9 PUBLISHED BY GENERAL DYNAMICS CORPORATION 52 Wednesday, April 22, 1964

FORWARD LOOKING DEFENSE PLANNING, URGED BY LEWIS

General Dynamics Corporation has strengthened its competitive posture and the future generally looks good, Roger Lewis, president, told members of the GD/Pomona Management Club at the April 10 meeting.

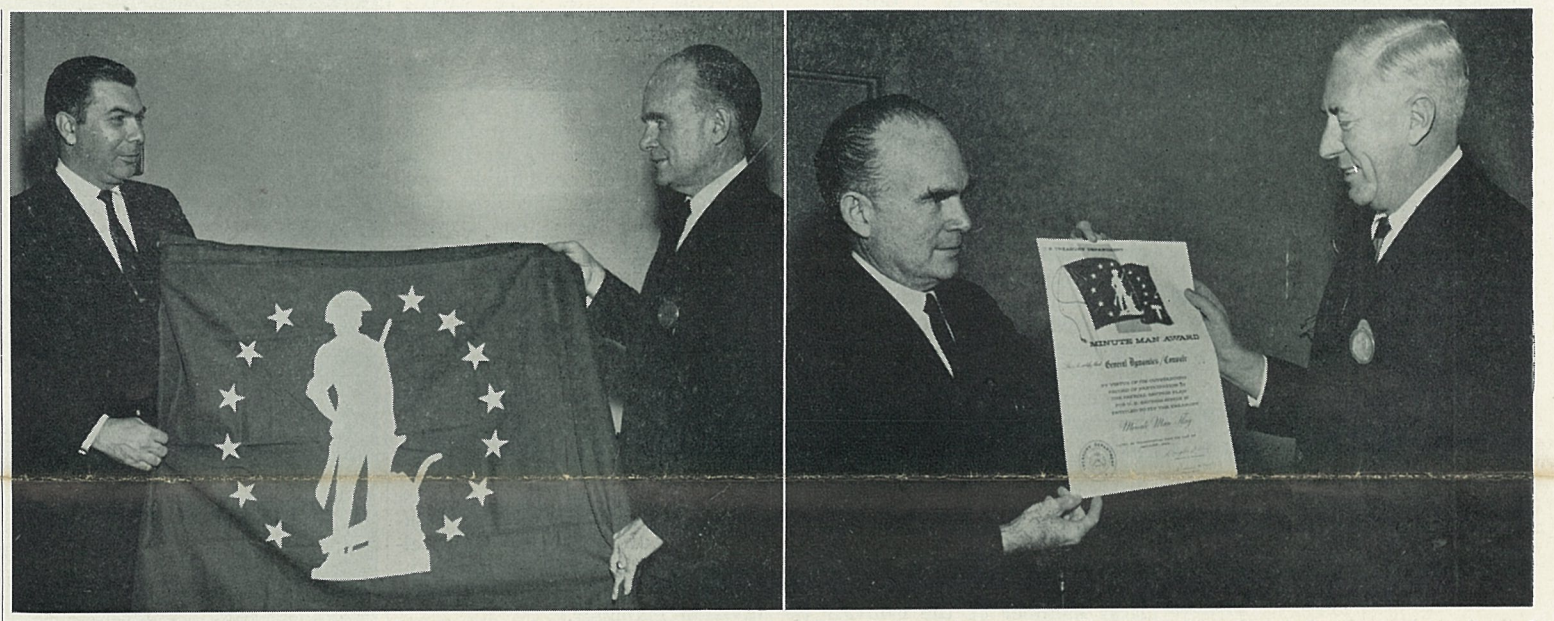
"The company has recovered from its severe losses of 1962. We finished 1963 'out of the banks' and pre-paid a part of our long term debt. The 880/990 program was concluded at $33 million less than anticipated," Lewis reported.

At the same time, the company has streamlined and strengthened its organization and made substantial investments in new facilities, such as acquisition of the Fore River Shipyard at Quincy, Mass. (**GD/NEWS** Jan. 2, 1964), and $15 million authorized for new facilities and equipment among the Southern California divisions.

"Defense contractors have important responsibilities," Lewis continued. "Weapons systems have long development cycles and they must be ready when needed. While we hope fervently for peace, history is not reassuring and we must do our part to maintain U. S. strength."

Lewis said that as the weapons inventory of U. S. defense is filled, appropriations can be expected to level off or even decrease, thus making competition more and more severe.

"However, if we do the best job of design, development and production within the shortest time and least money we can view the future with confidence. We are determined to excel in every field in which we compete," he concluded.



KEEP IT UP — At far right, D. C. Wilkens Jr., standing in for J. H. Famme, GD/Convair president, receives U.S. Treasury Award from A. A. Hendrix, General Dynamics vice president-industrial relations, while at far left John Lombardo, head of GD/Electronics division, receives flag from Hendrix, symbolic of award. Recognition was for 1963 performance in employee purchase of U.S. Savings Bonds by payroll deduction. Both divisions are striving for top performance in 1964 campaign.

Strong Bonds Push Planned

GD/Convair and GD/Electronics-San Diego join with other divisions of General Dynamics next week in the annual campaign to boost sales of U. S. Savings Bonds by payroll deduction.

All those who are presently buying bonds regularly will be contacted and given an opportunity to sign up. A simple signature is all that is necessary to authorize deduction. Minimum is $1.25 a week. Savings and interest accumulate at a steady rate. For example, $5 a week is worth $810 in three years and $1,408 in five years.

All present buyers also will be contacted and given an opportunity to boost their buying rate.

Sid Gillman to Show Movies On Chargers For GD/E Club

A treat is in store for sports-minded GD/Electronics-SD Management Club members next week when they will see "Charger Highlights of 1963" at the April 30 meeting, in Catamaran Hotel, Mission Blvd.

Sid Gillman, head coach of the San Diego Chargers, pro-football team, will show the movie and speak on Chargers' prospects for the coming season.

A club banner will be presented to the GD/E group, organized last fall, by the Pomona Management Club. George Lombard, vice president of the sister organization, will be on hand for the presentation. Also, Ralph Bauman, president of the Astronautics Management Club, will represent that group as he presents an American flag to the GD/E club.

D. A. Graybill, GD/E club president, will announce his appointments to the nominating committee which will be instructed to present a list of candidates for 1964-65 at the May meeting.

Social hour will start at 5:30 p.m. with a prime rib dinner served at 7.

Tickets, $3.50 each, now are on sale to all members by departmental representatives.

Mohr, Woodard Team For Top Cost Award

Two Dept. 101 men, who parlayed their cost-reduction ideas to $142,082 savings for GD/Convair division in one year alone, share President's Award honors for 1963.

Henry A. Mohr, assistant foreman in sheet metal, and Howard M. Woodard, factory special assignments man, were named the division's outstanding cost reduction team by President J. H. Famme as he presented them the coveted award at last week's Management Club meeting.

They divided the $250 which goes to the winner in the form of a gift certificate. Mohr's $125 certificate was tabbed for a saddle for his quarter-horse. Woodard's was paid toward air conditioning for his car.

The two won the top cost reduction honor for three CIPs installed in sheet metal department last year. (They are authors of one CIP approved since the first of this year, and have two others pending.)

Their first in 1963, credited with $123,063 in savings, called for in-plant production of sheet metal blanks by the rubber-blanking method. The second, worth $16,816, suggested using the blanking method to pierce holes in blanks, formerly done manually. Their third CIP, saving $2,203, put into use a single unit quick-change clamp that slides into the die set in a minute, compared to the former five-piece setup, which took six minutes to install.

Both are long-time sheet metal experts. Mohr joined Convair as a helper in sheet metal in 1939 and rose to foreman before a stint with the Army during World War II. Except for a year, 1948-49, as manufacturing engineer in industrial methods, he has served in sheet metal supervisory posts all the years since.

Woodard came to Convair in 1942 as a general helper in drop hammer, advancing to operator within a few months. After two years (1944-46) in the Navy, he

(Continued on Page 2)

Team Reviews Value Effort

W. A. Pulver, president of Lockheed-Georgia Co., and Bert Monesmith, Lockheed Corporation group vice president-manufacturing, headed a team of Lockheed officials at GD/Convair last week to review value control efforts as they are applied to cost reduction on C-141 empennage production.

The Lockheed men are visiting all C-141 subcontractors to evaluate value control and cost reduc-

(Continued on Page 2)

DOUBLE HONORS — H. A. Mohr and H. M. Woodard (both Dept. 101) share 1963 President's Award, presented by Division President J. H. Famme, April 15. Their CIPs totaled $142,082 in savings to Convair during last year.

Article Published On Drag Reduction

S. T. Piszkin, GD/Convair aerodynamics engineer, has received the latest $150 Writing Award from the division for his share in preparing an article published in the first issue of Journal of Aircraft, publication of American Institute of Aerodynamics and Astronautics. The magazine's initial edition was dated January-February, 1964.

Piszkin was co-author of "Reduction of Drag Rise on the Convair 990." Working with him was John T. Kutney of General Electric.

Log Book Entries

Edward F. Gurling, Dept. 400-3, GD/Convair, received 25-year service emblem recently.

Papers Presented

CONVAIR

LYMAN—John W., Dept. 6-2. "Fiber Glass Composites for Aircraft Primary Structure," Society of Plastics Industry, Western Section, Los Angeles, Calif., April 17.

SMITH—Clarence R., Dept. 6-5. "Predicting Service Life of Full-Scale Structures," to Arizona State University graduate school of engineering, and "Tips on Fatigue," to faculty members, Tempe, Ariz., April 21.

Awards

CONVAIR

Employee Suggestion Awards approved for periods April 3 and April 10.

Dept. 48, R. J. Harris, $15.

Dept. 102, F. M. Baxter (two awards), $66.50 and $42.90.

Dept. 119, G. H. Parker, $10; L. O. Smith Sr., $10.

Dept. 128, R. V. Lucero and E. Newman, joint award, $10 each.

Dept. 131, P. DiGiulio, $10; A. A. Martin, $123.60.

Dept. 141, G. W. Marx Jr., $70.

Cost Improvement Proposals approved for the same periods:

Dept. 15, R. B. Carpenter and L. J. Hayes, joint proposal.

Dept. 101, R. D. Gowdy.

Dept. 102, T. C. Berardini.

Dept. 119, L. W. Stamper.

Dept. 141, E. E. Miller.

Service Emblems

CONVAIR

Service emblems due during the period April 16 through April 30.

Twenty-five-year: Dept. 6-21, R. L. Phillippi.

Twenty-year: Dept. 6-53, H. L. Harris.

Fifteen-year: Dept. 6, R. E. Dietz, O. L. Todd; Dept. 97-2, L. W. Dean.

Ten-year: Dept. 34-5, H. A. Billings, Dept. 91-4, Dorothy E. Greggs.

ELECTRONICS

Fifteen-year: Dept. 33-00, F. G. Belsky.

Ten-year: Dept. 72-00, J. W. Wheeler; Dept. 83-00, Dorothy Farrell.

Five-year: Dept. 82-00, R. L. Allen.

Retirements

CONVAIR

HUGHES—Roy H., Dept. 14-5. Seniority date June 30, 1950, retirement effective March 31.

RAIFSNIDER—Harold S., Dept. 48-77. Seniority date Nov. 2, 1950, retirement effective March 31.

SEIP—Matilda B., Dept. 401-7. Seniority date Feb. 12, 1951, retirement effective March 31.

TAYLOR—Erma R., Dept. 218. Seniority date Aug. 5, 1948, retirement effective March 25.

ELECTRONICS

CONNOLLY—A. J., Dept. 35-00, GD/E Plant 2. Seniority date Aug. 8, 1956, retirement effective March 27.

Personals

CONVAIR

The family of Leonard E. (Pappy) Oldfield (Convair Dept. 25, ret.) extends its deepest appreciation to his many Convair and Astro friends for their kind expressions of sympathy and sorrow at the loss of their beloved husband and father.

Mrs. Jenne Oldfield,
Dorothy (Astro Dept. 596-0),
Patricia and Leonard.

MUG OF YEAR — James L. Wainwright (right), long-time Convair engineer and now manager of structural design, receives silver "Mug" from C. W. Frick, vice president-engineering, at April 15 Management Club awards night.

Jim Wainwright 'Mug of Year'; Design Excellence Recalled

James L. Wainwright, manager of structural design, now on special assignment, was singled out as "Mug of the Year" at the April 15 awards night of GD/Convair Management Club.

Wainwright, who first joined Consolidated Aircraft Corp. in Buffalo, N. Y., in 1934 and moved with the company to San Diego in 1935, received the silver mug from C. W. Frick, vice president-engineering.

Frick pointed out that the "man of the year" had had a part in every design Consolidated or Convair has developed in the last 30 years.

Wainwright served as project engineer on the Model 110, Model 39, R3Y, and first Convair 240 programs.

"The performance reliability of Convair integral tanks can be traced directly to Wainwright," said Frick. "His continuous leadership in integral tank design began with his work on the PBY-1, first production airplane to have such tanks.

"Through the years, his leadership in tank design has been envied or copied by aircraft companies throughout the world. The development of scotchweld sealing, a major breakthrough in supersonic tank design, was a direct personal effort by Wainwright and his design team.

"This man is held in highest respect by manufacturing people, too. Through the years, his designs are producible with the highest degree of integrity. His design efforts are always directed at the end product and its reliability in the customers' hands."

In 1948-49 Wainwright was assigned responsibilities of engineering coordination, special accident investigation as assistant works manager and assistant to division manager.

He then returned to engineering to serve as group engineer of wing and tail design on 340, 440, F-102, F-106, Sea Dart, Pogo, XFY, and R3Y to name a few.

When the ICBM project began, Wainwright had responsibility for the design of the prototype Atlas tank and liaison with Solar Aircraft, which built it.

He monitored the commercial jet transport through to FAA certification as chief of commercial design, and as manager of structural design has been responsible for structural design of such projects as the C-141 empennage, Little Joe II launch vehicle, and SATS mats.

Convair Club Chooses Wood

W. J. Wood (Dept. 6-2) is the first member of the Convair engineering department to be elected president of the division's Management Club.

Wood was elected president over Joe Freeman (Dept. 42-0) by a small margin in an election which saw a record percentage, nearly three-fourths, of ballots returned.

In regular balloting, club members also chose M. L. Sweeney (Dept. 42-5) first vice president for the coming term, which starts June 1.

Ray Lange of Dept. 14-5 will serve as second vice president; C. H. Hahn (Dept. 28-0), recording secretary; R. G. Macomber (Dept. 93-3), financial secretary; K. K. Verseckes (Dept. 93-0), treasurer.

M. C. Tombler (Dept. 6-0) is new three-year member of the board of control. L. J. Solheid (Dept. 16-1) was chosen for the two-year board of control post.

The four board of control members, elected for one-year terms are: Jack Benedict (Dept. 141-0), H. B. Day (Dept. 16-6), C. S. Strand (Dept. 131-0), and S. W. Swenson (Dept. 6-2).

Installation ceremonies will be held at the club's spring dance in May.

Dept. 101 Men Win Top Award

(Continued from Page 1)

returned as a die finisher in tooling's plastic section, transferring to sheet metal as a drop hammer operator late in 1946. He left the company in 1950 to spend a year farming in Illinois. Rejoining sheet metal, he was promoted to assistant foreman in 1953. Except for a few months in 1961, as labor relations representative, he has devoted his efforts and talents to special sheet metal projects since.

Runners-up for the 1963 President's Award were E. V. Torp (Dept. 91), $250,634; K. K. Verseckes (Dept. 93), $27,399; K. W. Wulfemeyer (Dept. 3), $118,-850.

1962 winner was Mattie C. Ross, assistant supervisor of telephone and teletype operations, first woman to receive the cost reduction award. Other winners have been: Willard Martin (1961), Jerry G. Hawkins (1960), Jack W. Cox (1959), Kent Sinclair (1958), F. N. Gagnon (1957), J. R. Teague (1956), George Bailey (1955), Mike Alianelli (1954).

GD/E Demonstrates New Console At Washington, D.C., Conference

General Dynamics/Electronics-SD is demonstrating for the first time a new display console which simultaneously presents computer-generated information and film-projected data at the Spring Joint Computer Conference this week (April 21-23), Washington, D. C.

The combined display is made possible through use of a special version of the CHARACTRON® Shaped Beam Tube which has an optical window built into the rear of the tube.

Film frames are projected through the window onto the inner phosphor-covered surface of the tube face and are visible from the outside. The film frames are thus superimposed over the information generated by the computer. Specific frames may be automatically selected through computer program control in the console.

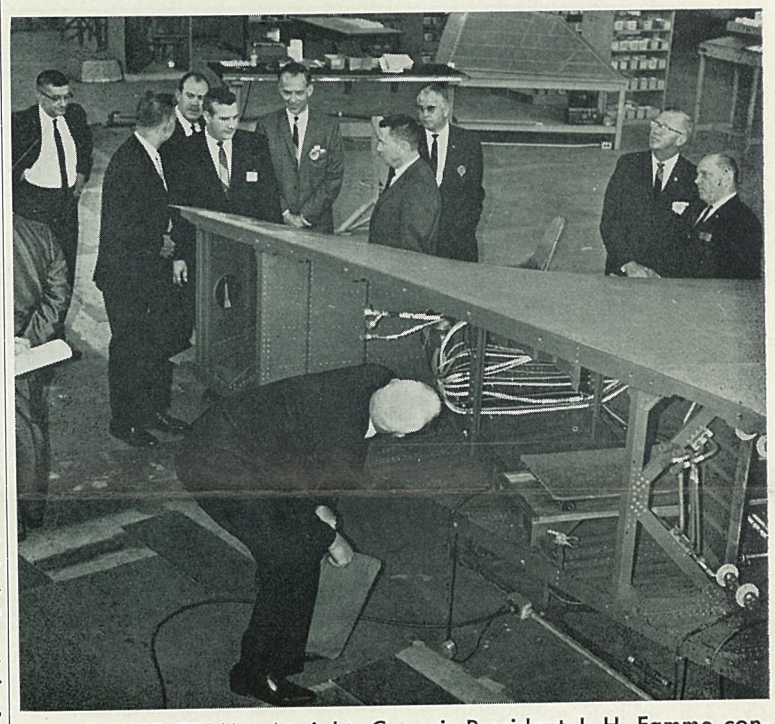
A prime advantage of the new system is the saving of valuable computer and dynamic display time through the projection of infrequently changing background data onto the display surface. In addition, colored film may be used to give the console a multi-color display capability.

In an air traffic control application, various maps of the traffic area can be produced on film and projected on the display screen. The computer is then free to present only changing data such as identification and movements of aircraft in the area. In other applications, business and engineering forms may be projected onto the tube face. In this case, the computer is only required to present changing alphanumeric information to complete the form.

The compact film projection unit is offered as an option but will be housed in GD/E's standard S-C 1090 Direct View Display Console.

Road Runners Plan Trip to Pine Crest

Road Runners traveled to Osborne County Park, near Glamis, for a desert weekend April 10-12, reported CRA Commissioner Ralph East. Next month's outing will be held the third weekend of the month (May 15-17). The trailer group will trek to Pine Crest, CRA recreation area near Julian.



LOCKHEED TEAM—At right, Convair President J. H. Famme consults with Lockheed-Georgia president, W. A. Pulver, in C-141 production area during recent visit of Lockheed group to evaluate value control efforts.

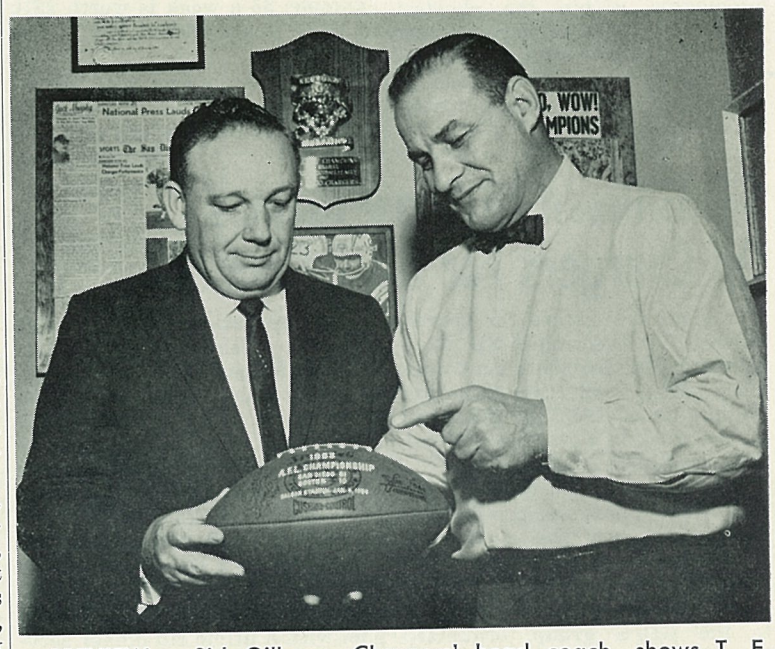
Team From Lockheed-Georgia Visits Convair To Review C-141 Value Engineering

(Continued from Page 1)

tion programs.

Convair-directed overall value control activities and specifically those involving the C-141 work were outlined by H. P. Williams, division value control manager. R. W. Miller, Convair C-141 program manager, continued with a projection of C-141 cost reduction targets.

At the San Diego division to see the C-141 production line and to inspect value control organization, besides Pulver and Monesmith, were H. Lee Poore, director of manufacturing tooling; John McCarthy, director of material; W. W. Cowden, director of finance; R. D. Gilson, C-141 project engineer; O. E. Erwin, director quality assurance; N. F. Hill, material administrator, all from Lockheed-Georgia.



PREVIEW — Sid Gillman, Chargers' head coach, shows T. E. Morris, program chairman of GD/E Management Club, football trophy from team's AFL Championship game. Gillman will show Charger highlights at April 30 Management Club meet.

General Dynamics NEWS

Published by General Dynamics Corporation, One Rockefeller Plaza, New York 20, N. Y.; with editorial headquarters at 3302 Pacific Highway, San Diego 12, Calif., P.O. Box 1950, telephone 296-6611, ext. 1071. Logan Jenkins, editor-in-chief.

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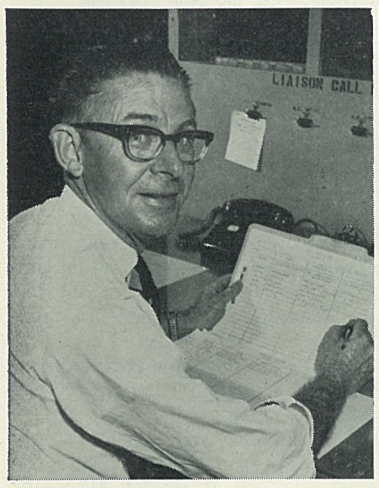
Affiliated editions of General Dynamics NEWS are published in Rochester, N. Y., covering GD/Electronics and Stromberg-Carlson, editorial offices, 100 Carlson Road, HUbbard 2-2200, ext. 2555. Fred E. Voss, editor; and at Groton, Conn., covering GD/Electric Boat, editorial offices at Groton, HIlltop 5-4321, ext. 300 and 513, Joseph Tracey, editor.

Secrets of Success . . .

Accident prevention will receive greater and greater attention throughout General Dynamics divisions this year. General Dynamics is proud of its record in the past (its divisions consistently have ranked among the safest plants in the country). However, the Corporation is determined to do even better in 1964 and succeeding years. Well organized safety programs are essential, but alert employees are even more vital. All divisions boast many departments that have gone for long periods without injuries, involving thousands of alert employees and hundreds of expert supervisors. To tap their "secrets of success" GD/NEWS has interviewed a sampling. Some tips on how their departments have achieved outstanding success appear on this page.

Housekeeping and First Aid Records Prove Valued Assist



KEEPING TABS — W. L. McKnight of GD/Fort Worth keeps daily reports that help him maintain excellent safety record.

GD/Fort Worth's Dept. 14 (tool services) has operated more than 16 years without a disabling injury. Here are some tips from key supervisors:

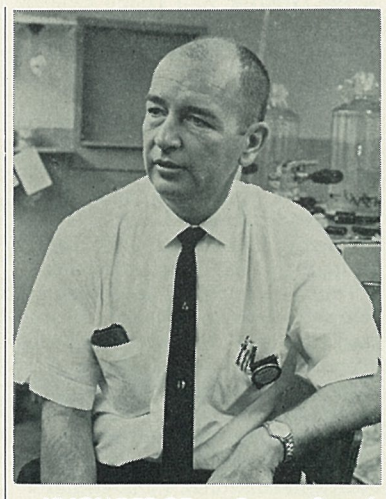
G. A. Frazier: "I'm a firm believer in keeping the subject of safety in mind at all times. Regular talk sessions among supervisors and between supervisors and their people are most helpful. I've even asked supervisors to describe on paper the conditions they think are the most desirable, just to keep them thinking on the subject."

W. L. McKnight: "Housekeeping is an absolute must . . . and I find it is helpful to keep daily housekeeping and first aid records and refer to them regularly. I had one employee who had not had an accident in ten years. Then his name started appearing on first aid reports. I talked with him every day, trying to fish out his problem. He finally confided that he was worrying about a personal situation. I'm no psychologist, but just talking about his trouble helped him."

J. E. Bobbitt: "Accidents don't just happen. They are caused by physical, mental or mechanical failure."

C. E. Allen: "People play the biggest role in keeping a safe department safe. When they discuss accidents and near-accidents their awareness of the presence of danger prevents many an injury."

COMMITTEEMEN — All divisions agree safety committeemen are invaluable. Committeeman R. L. Hardee, left, of GD/Fort Worth discusses tag with E. J. Luna.



KNOWLEDGE — Roger Steadman of GD/Electronics advocates thorough understanding of job.

Knowledge Best Protection, Says GD/E's Steadman

"One man cut by a shower of shattered glass makes a believer of all of us," Roger Steadman of GD/Electronics-San Diego said in pointing out the particular hazards present in development and fabrication of Charactron® Shaped Beam Tubes.

Steadman, who supervises the tube shop, says that most accidents in his area involve encountering an unknown factor in the glass.

Every means possible is taken, through correct design, processes, and inspection, to build safety into the glass, and Steadman, himself, undertakes the never-ending task of educating his people to insure that they do not expose themselves to unnecessary risks, taking full advantage of all personal protection equipment.

"I try to see that all of my people are as familiar as I am with strain patterns which might cause tube implosion (collapse of a glass tube, with the resulting rebound of broken jagged glass). A little knowledge breeds contempt, they say, and I am determined that everyone working with the tubes knows a LOT about the entire process.

"I encourage an informal study program, supplying technical books and material. I feel that anyone who is interested in his work, and constantly learning more about it, is going to be more alert and careful."

Do You Care? Then Heavens! Why Make a Secret Out of It?

"Constant employee interest in the safety effort is the single most important element," M. M. Goodhart, GD/Astronautics general foreman, declares.

"In sheet metal and processing we 'talk it up' continuously and maintain a true 'open door' policy in encouraging suggestions. Whether an idea is good or bad it gets prompt and serious attention. Almost every machine or tool in these departments has safety devices suggested by operators.

"For example, one heat treat employee watched red hot items emerging from ovens and being handled with asbestos gloves. Sooner or later, he reasoned, there would be burns. With plenty of encouragement from supervision he designed pinchers that could be attached to cranes. That's what we use now!

"I think it is most important to CARE, and to let the people around you know that you CARE about a safer and more efficient operation. If a man with an idea encounters disinterest in his boss he soon will tire of advancing any ideas, and probably become disinterested in his job, too."

Everyone likes recognition and Goodhart finds winning safety contests is good for the departments. When each new honor is won Goodhart writes a personal letter of congratulation to every man and woman on the team.

Goodhart joined many others in crediting inspiration of professional safety engineers as vitally important to success.

PAT ON THE BACK — GD/Astro's M. M. Goodhart writes personal letter to every team member when departments win awards. He is firm believer in encouraging everyone to make suggestions on how work areas can be made safer.

'Taking a Chance, Just This Once' Can Stand Being Discouraged

L. J. Enfield, GD/Pomona machine shop general foreman, in speaking of his department's long-time successful safety program, emphasized the importance of having every employee aware of dangers involved in "taking a chance."

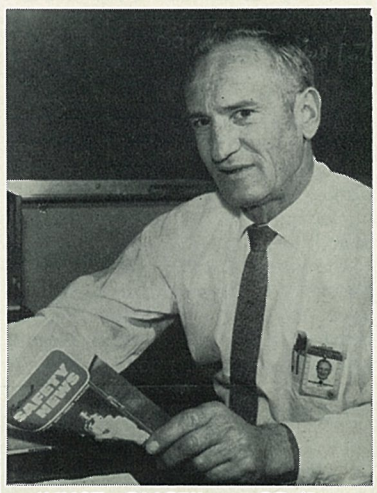
"We've found in past investigations of minor accidents—the kind most prevalent—that injured persons knew the safety rules and proper procedures," Enfield said. "They were aware that what they were doing might result in injury, but they decided to 'try and get by this time.' "

As an example, Enfield cited the case of a man pushing on a wrench in a manner so that his knuckles would be skinned if the wrench slipped. Instead of changing to a different and safe wrench position or using the proper length handle or an extension, too many persons try to get by—"just this once."

"Everyone must realize that there is a right way to do every job. That way has been properly planned to be safe. Short cuts or deviations result in accidents," Enfield emphasized.

All supervisors and employee safety committeemen in the GD/Pomona machine shop work together in spotting and correcting any lapse in good safety habits.

"Most of us develop proper habits after we realize that rules and programs are designed for our own good," Enfield concluded.



"JUST ONCE" — GD/Pomona's L. J. Enfield hits risk-taking.

Safety Engineers Inspire Programs

The inspiration afforded by safety engineers themselves is an important factor in success in safety programs.

One supervisor said:

"These men are a constant source of encouragement and stimulation. They help us follow through with ideas to make our areas safer and we feel they are personally involved in our problems, not just someone to be reckoned with."

Know the Job, Know the Perils, Convair's Benedict Advises

"Every man assigned to me is, first of all, given a personally guided 'safety' tour of the area," says Jack Benedict, C-141 assistant foreman at GD/Convair.

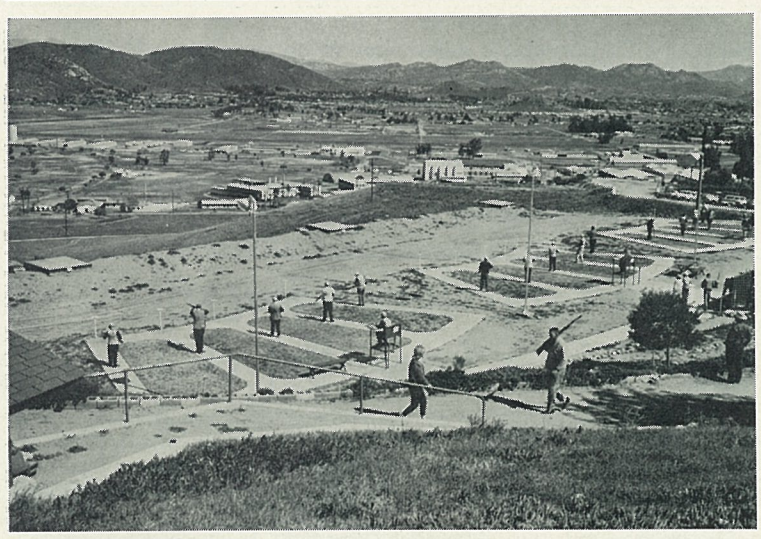
"We explain the job thoroughly from a safety viewpoint—what the duties are, what tools will be used, how they must be held to be operated safely, what safety equipment must be worn, and what specific safety problems might exist.

"For instance, in the horizontal stabilizer group, men must work on a ramp-type platform. This presents special safety risks. Anything set down on the slope will roll down and hit someone below. Men can turn an ankle or trip and fall on the incline. And, inside the stabilizer there isn't room for a worker to stand upright without banging his head.

"We remind our people constantly to watch themselves—think of every move they make, every tool they use, to keep alert and be safe. It's the easiest thing in the world to get hurt if you're going around half asleep.

"I remember too well seeing my partner on the PBY assembly line get an eye swiped out by an unguarded electric drill," recounted Benedict, who joined the company as a young man in Buffalo, N. Y. "Believe me, it's one of the reasons I'm eternally harping on safety goggles or face shields, whenever there's the slightest danger."

REMINDERS — Convair's Jack Benedict recommends "safety tour" of area for new arrivals. He believes thorough knowledge of job and forewarning of specific dangers is of paramount importance.



ON THE RANGE—Sharpshooters line up on CRA-ARA Gun Club range at Gillespie Field in one of many events arranged regularly for GD enthusiasts. Gun Club is probably most popular of all recreational activities sponsored by San Diego divisions. — Photo by C. Robert Learn.

Shooters Brave Winds and Chill For CRA-ARA Gun Club Contest

Fifty-eight shooters from all parts of Southern California braved a chilly, windy day to compete in CRA-ARA Gun Club's registered ATA trapshoot April 5.

At least a dozen drove and flew to the Gillespie Field site from Imperial Valley, in spite of sand storms and strong winds which closed highways later in the day.

Sona Wong of El Centro won two transistor radios — one for his score of 92 which took first in 16-yd. Class A, and the other for his high score of 79 in doubles.

W. U. Gatterman of Astro shot a 91 to place second in 16-yd. Class A. His prize was a box of primed 12-ga. hulls.

Ties tangled Class B, C, and D top spots, with shoot-offs deciding first-prize winners. Les Tucker of El Centro won the radio and Don Estes of Lakeside, the box of hulls in Class B. They had tied with scores of 93. In Class C Bill Duncan of Escondido was judged first and Art Berry of Lemon Grove, second. Their tied score was 91. Class D had a three-way tie between Bill Crafton of San Diego, Juanita Cole, Calexico, and M. B. Knutsen of La Mesa. Crafton won the shoot-off and radio; Mrs. Cole, the box of hulls for second place. Score was 85.

In the handicap event, Nathan Tate was first with 94, winning a single-action Frontier pistol with an extra .22 magnum cylinder. George Harbaugh of Astro was second with 88. His prize was a single-action Frontier pistol. Norman Kline of El Centro took home a transistor radio for his 87-point third place.

High junior was Gene Lumsden of South Gate who won a transistor radio for his 76.

Margaret Sprague of Torrance was high lady with 78 points to take home a pair of opera glasses.

Doyle to Address Value Engineers

C. W. Doyle, GD/Fort Worth cost reduction coordinator, will be main speaker at the San Diego Chapter, Society of American Value Engineers, next Tuesday evening (April 28) in the Mission Room of the Mission Valley Inn.

Reservations for the $3.50 dinner meeting are being taken now by E. A. Lindem, Astro main plant, ext. 1933; Wayne Turner, Convair Plant 1, ext. 2568; W. D. Garrett, GD/E Plant 1, ext. 2910; R. C. Mansell, GD/E Plant 2, ext. 36.

QUALITY CONTROL SOCIETY TO MEET

Roland Finch, director of research, and Louis Canedo, quality control manager, both of Westgate California Corporation, will address the San Diego Chapter, American Society of Quality Control May 11 at the Islandia Hotel.

Astro Leads Divisions Competing In Tournament at San Luis Rey

Teams from four General Dynamics divisions clashed earlier this month in the spring edition of an inter-divisional golf match at San Luis Rey.

Astro led in point standings with 339, followed by Pomona with 328, while General Atomic scored 259 and GD/Electronics tallied 209. These scores will be added to results of a rematch this fall, with a traveling trophy going to the team with the highest total.

Individual honors in the 5-11 handicap bracket went to Adam Grik, Pomona, with a low gross 75, while R. Schively, GA, scored 79, and E. Lovell, Pomona, 80. Low net honors went to J. Barber, GA, 68; Dick Tobias, Astro, 70; and G. Bonner, GA, 70.

Ivan Raney, Astro, had low gross in the 12-16 class scoring 86, while Ernie Stuchley, Astro, had 88, and G. S. Elmore, GD/E, 90. Astro's John Jackman scored 74 for low net; Ernie Paul, GD/E, 75; F. Hottenroth, Pomona, 75.

Low gross in the 17-20 handicap class went to Lee Kite, Astro, with 86; while L. A. DiVincenzo, GD/E, scored 89; C. Anderson, Pomona, 92. F. Bowles, Pomona, shot low net 71; Nick Montallegro, Astro, 71; R. Benham, General Atomic, 75.

In the 21-and-over class, an 87 by R. Fenwick, Pomona, was low gross, followed by D. F. Jackson and D. V. Hill of GD/E with 94 and 95.

John Lombardo, GD/Electronics-SD manager, had low net 71. W. H. Jones, GD/E took second low net, and B. Burke, Pomona, third.

When telephoning, never mind the weather. Get to the point. Telephone time costs money.

76 General Dynamics Sons, Daughters Exhibit At Fair, 42 Win Honors

A GD/Convair daughter won Girls' Senior Sweepstakes honors in the Greater San Diego Science Fair this month, while 75 other General Dynamics sons and daughters shared 41 special awards for their displays.

Sweepstakes winner is Tamzon Feeney, daughter of Donald M. Feeney, GD/Convair Dept. 6-22. She is 14 years old, and in the 10th grade at Our Lady of Peace Academy. Her father is currently on loan to Fort Worth division.

Tamzon's project and display, "Growth comparisons of excised seed embryos and standard seed propagation," earned her a first place award among senior girls' exhibits in botany, and as Sweepstakes winner, she will display it next month at National Science Fair International in Baltimore.

Other General Dynamics youngsters earned a total of 11 firsts, 14 seconds, nine thirds, and seven special awards during the Fair in Balboa Park's Federal Bldg., April 8-12. All Fair exhibitors had previously won preliminary events at their individual schools prior to acceptance for the Greater San Diego Fair.

The Science Fair program is an effort sponsored jointly by local military, industrial and educational institutions to provide additional stimulus for able students to actively apply their knowledge and learn methods of critical thinking through problem solving in math and science.

Both GD/Convair President J. H. Famme and J. R. Dempsey, GD/Astro president, serve on the Fair's Board of Governors, with Dempsey this year again filling the post of chairman.

Jack Croft, GD/Astro chief of educational services, and Emory Thurston, also of GD/Astro, served on the management committee and as co-chairmen for judging.

Judging committee staff this year included Dr. Ed Creutz, vice president—research and development, General Atomic, and Dr. H. F. Dunholter, director, research and advanced technology, GD/Astro. Laura A. McGraw of GD/Astro served in a clerical capacity.

Special judges, all assigned to GD/Astro, were Col. R. B. Kelly and Majors Frank Silvasy, John Doyle, Fred Gluck, Joseph Gricius, Michael Kentosh, all of U.S. Air Force; and NASA representatives Richard King, W. J. Chabot, Bill Hein and Claude Wilson.

Other judges were C. E. Klein and H. J. Stuart of GD/Electronics; Dr. Giovanni Bucolo, Dr. M. A. Fineman, W. V. Goeddel, Dr. R. H. Miller Jr., Dr. H. R. Snodgrass, G. R. Tully Jr., Dr. D. O. Wissinger of General Atomic.

GD/Astro men serving as judges were Dr. H. E. Adelson, R. F. Arenz, D. E. Bain, W. M. Brandenberg, Dr. J. C. Breeze, M. D. Campbell, J. D. Chiavario (Rocketdyne rep.), William Clausen, Dr. G. J. Goble, Les Harr, J. F. Haskins, D. P. Hoffman, H. M. Ikerd, Dr. Samuel Kaye, Dr. R. M. Leger, V. A. Martin, Dr. J. M. Maughmer, Dr. A. W. McReynolds, Dr. Arthur Redelsheimer, Dr. W. J. Schart, Dr. Leonard Schonberger (MD), E. W. Schwartz, R. S. Storey, T. T. Tanalski, Dr. P. E. Wilson, Aaron Wolgin, E. H. Wrench, Richard Forrest, William Stewart, Everett Lindem.

GD/Astro sons and daughters exhibiting projects in the Fair were:

Nancy Albers, Dennis P. Bader, Kay Barnier, Janice Bauer, John Boland, Cindi Bonsignore, John Breeze, Clifford Brown, Matthew Coleman, John Curtis, John C. Dobyne III, John Edwards, Pamela Franson, Donald E. French.

Jeffrey Greensite, Ken Happel, Gail Harmon, Michelle Harter, Kathleen Herring, Stephen Irwin, Susan Jaeger, David Johnston, Frank J. Jonelis, Robert Karr, Ellen Kossyta, Larry S. Landos, Christopher Lipsett, Jerry Lopez, David McQuoid.

Robert Pass, Patrick Passenheim, Holly Powell, Matthew Redlinger, Toni Ronstadt, William Root, Terry Siden, Craig Skidmore, Robert Spencer, William Stecker, Dennis Stone, Dennis Twiss, Ann Walsh, William Weaver.

David Wilson, Lynne Ellen Withee, James Wood, John Zeolla, Susan Zylius.

Entrants who are GD/Electronics youngsters were Charles Barksdale, Wendy Gniffke, Michael A. Tyndale and Leonard Viejo.

GD/Convair students displaying projects were Donald Atha, Denise Botticelli, Steven Bowles, Tamzon Feeney, Adriana Pazmany, Peter Paul Principe, Beth Romanowich and Jerome Tiesen.

Exhibitors whose parents are employed at GD/General Atomic are Gary Allen, Mark Allen, Stephen Borders, Margery Brown, David Goeddel, Jeff Hetherington, Eileen Kalk, Greg Mattson, Jack Norris, Michael Powell, David Siman, Gregory Simmons, Hugh Stewart, David Voorhies and Lyle Weiman.

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Young Exhibitors Tour Plants at SD

Groups of young exhibitors in the recent Greater San Diego Science Fair were given personally conducted tours through three General Dynamics divisions the week of April 6-10.

Astronautics' main plant on Kearny Mesa, General Atomic, and GD/Electronics-SD data products facility were opened to different groups of aspiring scientists.

At GD/E Plant 2 they viewed the S-C 4020 computer-recorder and S-C 1090 display console in operation. As they left, each was given a sack of surplus, but usable, transistors, capacitors, and other small electronic components.

Instruction Society Will Hear Reports

San Diego Chapter members of National Society for Programmed Instruction will hear a detailed report of the national convention at the April 30 meeting, 7:30 p.m., Convair cafeteria, Pacific Hwy., according to Griff Williams of GD/Convair, chapter president.

An account of convention proceedings will be given by three GD/Convair delegates who attended the San Antonio, Texas, gathering April 1-4. J. D. Meacham, Charles Keys, Dale Ball, all of Convair technical publications, were at the annual meeting with Meacham acting as chairman of technical presentations, and Keys participating as member of the panel on "Industrial Uses of P.I."

Astro Salvage Yard Will Be Open May 2

Astro's salvage yard at the Kearny Mesa plant will be open the morning of May 2 for employee sales. The Astro yard is operating on a once-a-month schedule.

Convair's Plant 1 yard, still on an every-other-week basis, will be open to GD people this coming Saturday (April 25) and May 9 from 8 a.m. until noon.

Dance Tickets Go on Sale

Gifts to delight the ladies will feature the annual Spring Dance of GD/Convair Management Club set for May 9 at the Sands Hotel, across Hwy. 395 from Astro main plant.

Each lady will receive a corsage. Ladies' purses will be raffle prizes. And, $100 worth of tickets to various attractions will be handed out as door prizes.

Dick Williams, general chairman, and his committee have obtained several admissions to Sea World, $5 each, which include Japanese pearls, all guaranteed to be worth over $2 (and, maybe, as much as $100) in value.

Other tickets given away will admit winners to Padres and Chargers games, performances at Circle Arts and Old Globe theaters, or to dinner for two at well-known San Diego restaurants.

Paul Ravino's five-piece orchestra will play for dancing from 9 p.m. to 1 a.m.

Tickets for the dance, at only $1.25 a person, went on sale the first of this week at all plant outlets.

Friends Honor Basil Isham

Basil Isham, long-time General Dynamics engineer, was feted by 100 of his co-workers during the 37 years he has been with the company. He is retiring.

The April 3 dinner at the San Diego Club drew together many who had, as Isham, joined the company in Buffalo, N. Y. They came from GD divisions of Astro, Convair, and Pomona, and other Southern California locations to honor the man who had had a hand in the design of all the planes, and some of the missiles, produced by Consolidated Aircraft and its off-shoots.

Isham was drawn to Consolidated in 1927 by I. M. Laddon, now GD director, after they had become acquainted during their work on the Spad project 10 years before at McCook Field, Dayton, Ohio. (Laddon was among those at the retirement dinner.)

Ken Jackman of GD/Pomona presented Isham with a specially-inscribed Terrier model commemorating his work on the guided missile project while it was still assigned to Convair division. And, Dick Lingley "pinned" him with a gold PBY emblem.

GD/E Wives to Meet At Shelter Island

GD/Electronics Wives' Club members and guests will gather at Shelter Island Inn on May 7 for their regular monthly meeting. Social hour from noon to 1 p.m., followed by a buffet luncheon.

Reservations will be accepted until May 5 by Co-hostesses Mrs. Madeline Briles at 276-3034, or Mrs. Alice Tucker, 273-7086. Price of the luncheon is $2.15.

ALL WINNERS — General Dynamics youngsters, pictured after judging in Greater San Diego Science Fair, captured 42 special honors during event. Biggest "prize" for contestants is opportunity to display work and confer with scientists, participate in tours of military, scientific and industrial complexes. Science Fair groups visited GD/E, General Atomic, GD/Astro, during event.

MANUAL REVIEW — Navy officers and Convair publications people at San Diego early this month for review of C-131F flight manual are (around table from left) LCdr. J. A. Grady, Cdr. R. Farris, Cdr. H. H. Rouzer, H. R. Kennedy, Convair chief of technical publications, Capt. P. D. Halpin, Betty Valin, Convair publications editor, Lt. D. D. Beyl, LCdr. E. C. Chase, Lt. J. Whitten, Lt. H. W. Brown.

Navy Representatives Review Transport Operating Manuals

First review of C-131F operating procedures, prepared by GD/Convair at time of delivery of R4Ys (now designated C-131Fs) nearly 10 years ago, was held in a joint Navy-Convair conference early this month, April 6-10.

A dozen Naval officials, representing air transport squadrons operating Navy transport-type aircraft, were at San Diego for the Navy Aviation Training and Operating Procedures Standardization (NATOPS) conference. H. R. Kennedy, chief of technical publications, and L. J. Solheid, supervisor, directed Convair participation.

Throughout the five-day conference a detailed page-by-page review was made of the C-131F flight manual sections: normal procedures, emergency procedures, crew duties, all weather operation, performance data.

Navy attendees were: Capt. P. D. Halpin, Cdr. H. H. Rouzer, Cdr. R. Farris, based with VR1 detachment, Patuxent River NAS, Md.; Lt. D. D. Beyl, BUWEPS, Washington, D. C.; LCdr. E. C. Chase, VR21 detachment, Alameda NAS, Calif.; Cdr. R. E. Empey, CNO/NATOPS coordinator, Washington, D. C.; Lt. H. W. Brown, Andrews Naval Air Facility, Washington, D. C.; LCdr. J. A. Grady, North Island NAS, Calif.; Cdr. H. C. MacKnight, Atlantic Fleet Command, Norfolk, Va.; Cdr. R. A. Evans and B. L. Grondona, BUWEPS, San Diego, Calif.

CRA Calendar

(Convair Recreation Association has some 30 activities in operation for Convair and Electronics people. For information call CRA headquarters, ext. 1245.)

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AEROMODELERS — Flying sessions Saturday and Sunday mornings, 8 a.m. to 1 p.m., Clairemont Mesa Flying Site. Call Don Larsen, ext. 1983, or Larry Peterson, ext. 794, both Plant 1, for information on coming free flight rubber-powered scale contest.

BOWLING—Last call for entries in annual CRA plant championship tournament, May 9-10, 16-17, Pacific Recreation. Forms at CRA office, Bldg. 32, Plant 1.

CAMERA CLUB—Joint CRA-ARA meeting May 3, 7:30 p.m., Photo Arts Bldg., Balboa Park.

GARDEN CLUB—Joint CRA-ARA meeting May 6, 7:30 p.m., Floral Association Bldg., Balboa Park. Slides of prize-winning dahlias will be shown.

GLIDER CLUB—Meeting second Saturday of month, 8 p.m., Golden Hill Playground Recreation Hall, 28th & A Sts. Call Don Larsen, ext. 1983.

GOLF—IRC tourney May 2-3, 9-10.

GUN CLUB — Regular club shoot May 3, Gillespie Field Range.

ICE SKATING—Thursday ice skating sessions, Mission Valley Ice Plaza, 6:30-8 p.m.

MODEL RAILROAD — Pacific Coast Region NMRA convention May 1-3, San Diego.

MOVIES—Reduced prices for General Dynamics people at State Theater, Euclid and El Cajon Blvd. General admission: adults, 75c; children, 25c.

PISTOL CLUB — CRA club shoot April 26, 9:15 a.m., San Diego Police Pistol Range, Federal Blvd. and Home Ave.

RADIO CLUB—Next meeting Thursday (April 30), 8 p.m., Harbor Drive club headquarters.

RIDING CLUB—Trail ride and campout April 25-26, Los Caballos camp. Call Tommy Thomason, 232-0153.

SOFTBALL — Turn in team rosters for "slow pitch" shop league to Pete Beyrer, ext. 1245.

SPORTS CAR CLUB—Meeting May 6, 7:30 p.m., Convair cafeteria, Pacific Hwy.

SQUARE DANCING—All General Dynamics Hoedown Saturday (April 25), Astro cafeteria, Plant 71.

STAMP CLUB—Meeting May 7, 7:30 p.m., Convair dining room, Pacific Hwy.

WATER SKI CLUB — Skiing on phone-call basis. Call Gene Sevigny, ext. 2701, Plant 1.

Parking Lots To Continue

Employee parking lots along Pacific Hwy., now used by GD/Convair, Astro, GD/E people at Plant 1, will continue in use until other arrangements are made as work progresses on the new freeway.

Convair plant engineers say that two temporary parking lots are being filled between Kettner and India Sts. for ultimate use of General Dynamics drivers. The first, to hold 500 cars, is bound on the north by Vine St. and extends south to Sassafras. The second, if needed, will accommodate 250 additional cars and run south from Sassafras to beyond Redwood St.

These new locations will take care of cars presently parked in Bldg. 19 lot, supplemental lot across Sassafras, and the Overpass 2 employees' parking lot, all to be eliminated by the freeway.

No change in present parking arrangements is expected until around the first of June.

Jo Ann Kranz Wins April Golf Event

Jo Ann Kranz won the April 11 links tourney of the General Dynamics Women's Golf Club.

Runner-up was Jerri Cooper, Clella Beauregard was third. Twelve girls competed in the Saturday match at Cottonwood course.

Next monthly tourney will be May 9. For information call Juanita Tilaro, GD/E Plant 1, ext. 2106.

Newly-elected officers of the GD girls' group are Jo Ann Kranz, president; Joy Ward, vice president; Ora Carpenter, secretary-treasurer. They will be installed in July.

Register Now For June NMA Golf Tourney

Convair and GD/Electronics golfers who intend to take part in the June 6-7 NMA Southern California District Golf Tournament are urged to register as soon as possible for their preference of starting times.

Terry Kell is taking Convair Management Club entries at ext. 2225, Plant 1.

Ernie Paul of GD/E Plant 2 is signing GD/E Management Club participants. Plant 2 main extension is 2193.

Absolute deadline is May 22.

Total fee, including greens fees, is $12 each for the two days. Entries are taken by twosomes only. All must submit established handicaps.

San Diego golfers will be assigned the early starting times on Saturday and the later times on Sunday morning to allow out-of-town participants time for the trip to and from San Diego. Cottonwood and Carlton Oaks Country Club courses have been chosen out of the six courses for play by San Diego club entries. Other courses to be used are Torrey Pines South Course, Mission Valley, Bonita Valley, Tijuana Country Club.

The women's tournament will be held at Mission Bay course. A $3 greens fee is the only charge for each lady taking part.

CRA Riders Slate First Trail Ride

First trail ride and campout of the season for CRA Riding Club is set for this coming weekend (April 25-26) to Los Caballos camp, said Commissioner Tommy Thomason.

All Convair and GD/E riders are cordially invited to join the trip. Those planning to take part may call Thomason at his home phone, 232-0153, or show up at the camp site, with a horse, at 10 a.m. Saturday.

The riding event has been arranged in honor of five Riding Club members who participated in the annual 100-mile trail ride last weekend from Lower Otay Mesa to Borrego Springs. The ride was sponsored by the International Trail Riding Association and the Borrego Springs Chamber of Commerce.

CRA members taking part were Vernon Logan, Fred Kershaw, Mary Senn (husband, George, at Convair), Elsa Haywood and daughter, Mary. Thomason joined them at Borrego.

Draw For Baseball Tickets Resumes

First baseball drawing of the season for Convair and GD/E fans will be May 15.

Two free tickets for each of a dozen home Padre games the last week in May and first week in June will be given lucky winners by Convair Recreation Association.

Home games, included in the initial drawing, are May 26, 27, 28 with Seattle; May 29, 30, 31 (double-header) with Portland; June 1, 2, 3, 4 vs. Spokane; June 5, 6, 7 (double-header) vs. Tacoma.

Entries may be dropped in the Baseball Drawing box on Convair employee services counter, or sent by mail to Baseball Drawing, Zone 3-20.

Only one entry is allowed each person. It must include name, clock number, shift, department number, location, plant phone extension.

Plant 1 Cafeteria Closed at Convair

Cafeteria in Bldg. 32, Plant 1, was closed, as of last Friday. Food service, including hot dishes, now is available only at canteens during lunch periods. The main cafeteria adjacent to Bldg. 19, on Pacific Hwy., is operating as usual.

Sports & Recreation

KEG AWARDS — In top photo are individuals earning honors in 1963-64 Convair Management Club league (from left): Perry Yates, high scratch series; Vic Baros, high handicap series; Jim Woodhouse, high handicap game; Ed Richie, most improved bowler. High scratch game, Bob Pearson, not present. In lower picture are team winners, misnamed "Little Ones." Standing (from left) are George Kuester, Al and Ernie Damarus; kneeling, Mike Clark, Del Dimmitt, team captain, and Jim Royle. Fred Green, not present.

'Little Ones' Edge 'Swaggers' In Mgt. Club Bowling Roll-Off

Hefty "Little Ones," averaging 200 pounds on the hoof, snatched a close victory in the Convair Management Club bowling roll-off for league champs. They barely edged by the Swaggers in the final frame with 15 pins to the good before they could claim the title.

Captain Del Dimmitt and his crew, Al and Ernie Damarus, George Kuester, Fred Green, Jim Royle, and Mike Clark received trophies on Sweepstakes Night April 6 at Mission Valley Bowlero, setting for the Management Club play. Ten teams have competed in the 1963-64 tourney since last September.

Other honors went to Bob Pearson for high scratch game of 258. Jim Woodhouse's high handicap game of 280 was good for the trophy. Perry Yates was rewarded for his high scratch series of 637 and Vic Baros won the award for high handicap series, 709.

Most-Improved Bowler award went to Ed Richie for his 12-pin improvement during the season.

Dimmitt was president of the Management Club league and Carl Martens, secretary.

'Slow Pitch' Teams Forming at Convair

Teams are now forming at Convair and GD/E for the coming CRA shop "slow pitch" softball league which will start play the first part of June.

Pete Beyrer of CRA urges all managers to turn in team rosters to him at ext. 1245 immediately. Practice games will be scheduled as soon as all teams are organized.

"Slow pitch" form of softball calls for a 12-in. ball and 75-ft. bases, reducing the speed of the game so that anyone may participate. Teams may list as many as 15 players, allowing five alternates.

Model Railway Fans to Meet

Long-time model railroad enthusiasts at Convair and GD/E are deep in plans for the coming Pacific Coast Region Convention to be hosted by NMRA's San Diego division, May 1-3.

Convair's David Kahler is general chairman of the convention committee and his wife, Jane, is acting as co-chairman of activities for the Railettes, women's group.

Karl Busch of Convair is in charge of hotel site and hospitality. Robert S. Durnell of GD/E, superintendent of the San Diego Division, will perform as convention photographer.

Eric R. Woods of Convair heads manufacturers displays and door prize committee and Ken Lawson, formerly of Convair, is arranging clinics.

DEVASTATED — Buildings twisted off their foundations at Seward, Alaska, are surrounded by wreckage of both earthquake and tidal wave. Photograph was taken two days after quake by Strategic Air Command B-58 bombers from 500 feet.

B-58s Speed to Alaska To Photograph Damage

The B-58's added role as Strategic Air Command's global low-level reconnaissance mainstay was dramatically demonstrated last month following the devastating earthquake in Alaska.

The day after the quake two B-58s from the 43rd Bomb Wing at Carswell AFB were dispatched for aerial photography of damaged areas. The mission was planned, cameras loaded, aircraft inspected, all within two hours after a rush call, a SAC release reported.

"High altitude photography would be difficult and spotty," Don Smith wrote in the SAC release. "Anchorage, particularly, was obscured by a layer of clouds at 1,000 feet. Mountains ringed the targets and the overcast made precision navigation a critical factor. The two B-58s made five photo runs at 500 feet under the overcast. Their automatic cameras worked perfectly."

The planes sped to Offutt AFB, Neb., where cameras were unloaded and film processed by the 544th Aerospace Reconnaissance Wing at SAC headquarters. On the flight the B-58s flew a total of 10 hours and 20 minutes, covering a round trip distance of 5,741 miles.

Next day two more B-58s from Carswell flew the entire mission over again, covering all seven targets without a hitch.

After the Cuban crisis underscored the importance of timely reconnaissance, SAC decided "to take advantage of the existing capability of manned bombers to improve ability to take pictures, with short notice, anywhere on the globe."

The B-58 was selected for its speed (up to twice that of sound) and versatility (it can fly "on the deck" or in the stratosphere).

"Its broad, delta wing gives it the best low-level ride of any bomber, an ideal camera platform," Smith wrote. "The external pod carries cameras as easily as fuel or weapons and pods can be changed quickly to convert a bomber to a reconnaissance aircraft."

Crews from the 64th and 65th Bomb Squadrons flew the Alaskan missions. They were: Capt. I. M. Glass, aircraft commander, Lt. Richard Arens, navigator, and Capt. Robert J. Hill, DSO; Maj. John C. Kennon, aircraft commander, Maj. Cosimo Mallozzi, navigator, and Capt. Roger Gerrish, DSO; Maj. Richard D. Snyder, aircraft commander, Capt. Donald E. Winters, navigator, and Lt. Richard L. Labonte, DSO; Lt. Col. Andrew G. Martin, aircraft commander, Maj. Carter N. Brunk, navigator, and Maj. Howard S. Bialas, DSO.

McClure Will Head Panel For Seminar

J. Y. McClure, General Dynamics director of reliability, quality control, value control, will head a top management panel at the fourth annual seminar of the San Diego section, American Society for Quality Control, May 2, at Vacation Village.

More than 400 persons are expected to attend the all-day seminar.

Rear Adm. Jackson D. Arnold, USN, will be principal speaker.

Calif. to Turn Back Clocks This Sunday

General Dynamics people in California will turn their clocks ahead an hour this coming Sunday (April 26) as the state goes on Daylight Saving Time.

Clocks will be set ahead one hour at 2 a.m.

GD employees at all California facilities and off-site bases will report to work an hour earlier (by the sun) the next day, Monday, April 27. The "lost" hour will be regained next fall when the state reverts to standard time.

Army Gives Go Ahead On Redeye Production As Contracts Granted

The U. S. Army has awarded three contracts totaling $17,981,642 to General Dynamics/Pomona for initial production and continued development of its shoulder fired Redeye air defense guided missile.

Two contracts totaling $13,222,358 to initiate production were announced by the Department of Defense April 10.

One contract for $8,240,710 pertains directly to production costs while the other for $4,981,648 provides for engineering services required to start production of the missile.

As is normal in all missile programs, development work is continuing. Award of a $4,759,284 contract to GD/Pomona for continued research and development of the Redeye missile was announced April 7.

Development of the weapon, the world's smallest guided missile, has been jointly funded by the Army and Marine Corps.

Delivery of production line missiles will be made to the U.S. Air Defense Board, Fort Bliss, Texas, where troop testing will be conducted.

Designed to be carried into combat on a soldier's back and fired from his shoulder, the Redeye got its name from the infrared heat seeking device it employs to "home" on the heat of an aircraft's engine.

The missile will give individual infantrymen effective anti-aircraft defense against low-flying enemy aircraft. It can be taken anywhere a soldier can carry a rifle.

Redeye is similar in appearance to the Army's famed bazooka anti-tank rocket. But unlike the bazooka, which fires an unguided rocket, Redeye is a true guided missile which can maneuver in flight.

The infrared sensor is mounted in the nose of the four-foot solid propelled missile. It is fin stabilized and aerodynamically controlled in flight.

Target detection and tracking is accomplished visually by the gunner. When the aircraft is within range of the missile and the infrared seeker has "locked on" the target, a simple squeeze of the trigger fires the missile.

Soldiers firing the missile in tests have scored hits after only a few hours of instruction.

The U. S. Army Missile Command at Redstone Arsenal, Ala., an element of the Army Missile Command, manages the weapon system for both the Army and the Marine Corps. E. K. Charlton is acting project manager. Lt. Col. Henry L. Claterbos is development officer.

TO PRODUCTION — GD/Pomona has been awarded contracts to initiate Redeye production. Staff Sgt. Rufus Parker is shown tracking airborne target with air defense guided missile. Redeye is development of U.S. Army Missile Command.

First Customers Place Orders For Self-Instruction Books

First orders for GD/Convair's latest series of programmed instruction textbooks, compiled by technical publications department, arrived within days of first announcement.

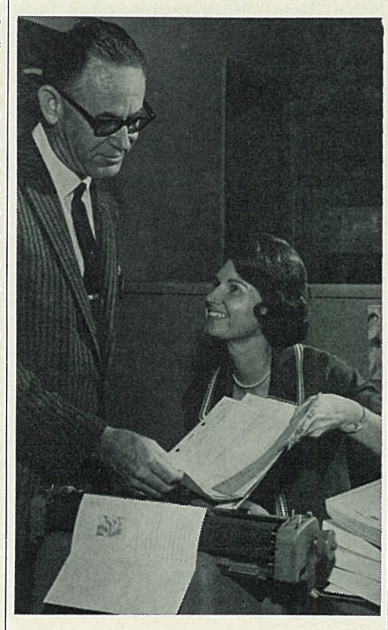
The new self-instruction books are for training and certifying nondestructive testing technicians. The first three of six now ready for the industrial market are: Introduction, Liquid Penetrant Inspection, and Magnetic Particle Inspection. Current scheduling calls for publication of the other three to complete the series—Radiographic Inspection, Ultrasonic Inspection, and Eddy Current Inspection—within the next year.

Howard R. Kennedy, Convair chief of technical publications, said that he was more than gratified by the early response to 900 brochures sent out the first of the month. Within the first three days orders (and checks) had come back from such companies as Industrial Steel Treating Co., Industrial X-Ray Engineers, Langley Corp., Magnetic Inspection Research Co., American Brakeshoe Co., Photo Chemical Products, Zarkin Machine Co., Irrigation Equipment, Larpen Industries, X-Ray Products Corp., Ferro-Spec Labs, Calumet & Hecla, Inc., Olin-Dixon, Inc.

The books, which took 10 months to compile, were authorized by General Dynamics Corporate Office and prepared under technical direction of the GD nondestructive testing working committee. This committee, made up of representatives from all GD divisions, was established to standardize nondestructive testing procedures and to exchange related information within General Dynamics.

Before final approval, drafts of the books were tested extensively and revised several times to make certain that they will effectively teach the material and reduce the amount of time now required to train technicians in liquid penetrant and magnetic particle inspection methods. They were tried out at GD divisions of Electric Boat, Fort Worth, Astronautics, and at the San Diego Naval Repair Facility with excellent results, said Kennedy. Test grades for all the books averaged above 90 per cent in final trials.

A sampling of comments from first users discloses that: "more material is being taught in less time and test grades have been higher than with conventional training methods" . . . "40 per cent less time was used in training a group of magnetic particle test technicians" . . . "students are getting significantly higher test grades on the written examination although the examination furnished with the programmed books is longer and more difficult than the one ordinarily used."



CASH SALES — Secretary Hazel Ferguson shows boss H. R. Kennedy, Convair's chief of technical publications, first orders for new series of programmed, self-instruction textbooks on nondestructive testing.

Cost Reduction Techniques Discussed at Joint Meeting

Cost reduction was the major theme April 8-9 when 16 key procurement executives from throughout General Dynamics operations gathered in San Diego for a procurement meeting.

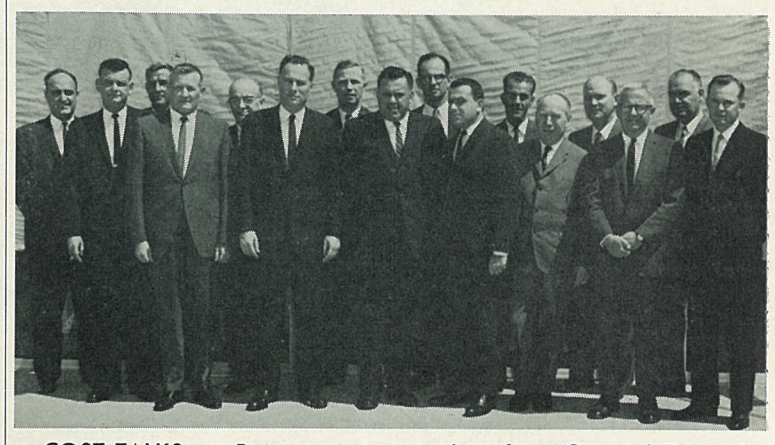
Heading the delegates was Max Golden, Corporate vice president, and three other Corporate representatives. Nine divisions and Canadair sent ranking purchasing and material leaders.

Special emphasis was applied to General Dynamics action taken or to be taken in response to recent Department of Defense and National Aeronautics and Space Administration requests for added attention to the reduction of costs in government contracts. Discussions covered every aspect of cost reduction in purchasing operations.

Special reports were made on specific topics with general discussions, exchange of information, techniques and ideas following. Several sessions dealt with advanced products.

Corporate participants, in addition to Golden, were J. M. Cowell, C. M. Barlow and Bob Wohl. Astronautics was represented by H. E. Moose and W. G. Evans, while General Atomic sent C. J. Brous and J. E. Eggleston. Others, with their division in parentheses, were: G. W. Zahrte (Convair), E. E. Altimas (Canadair), D. H. Painter (Electric Boat), J. B. McKinnon (Electronics-Rochester), L. A. Wood (Electronics-San Diego), C. A. Ford (Fort Worth), A. Toy (Pomona), and R. C. Stevens (Stromberg-Carlson).

Astronautics, Convair and Electronics-San Diego hosted.



COST TALKS — Procurement executives from General Dynamics divisions met this month in San Diego. From left: C. J. Brous (General Atomic), D. H. Painter (Electric Boat), C. M. Barlow (Corp. Office), H. E. Moose (GD/Astro), W. G. Evans (GD/Astro), Max Golden, Corporate vice president, J. B. McKinnon (GD/E-Roch.), J. M. Cowell (Corp. Office), R. C. Stevens (Stromberg-Carlson), Robert Wohl (Corp. Office), A. Toy (GD/Pomona), E. E. Altimas (Canadair), G. W. Zahrte (Convair), J. E. Eggleston (General Atomic), L. A. Wood (GD/E-SD), C. A. Ford (GD/Fort Worth).

Key Division Value Personnel To Confer on Coast Next Week

Key value engineering and cost reduction personnel from 11 General Dynamics divisions are expected to attend the third General Dynamics Value Control Seminar next week (April 27-28) in San Diego.

J. Y. McClure, Corporate director of reliability, quality control, and value control, will chair the two-day conference. He said that purpose of the meeting is "to provide information on Corporate policy to division value control administrators; to secure cross-fertilization through the interchange; and to secure maximum effectiveness of our value control programs for the divisions and our customers."

Some of the subjects to be covered are: Corporate viewpoint with regard to division value control programs; distinction between value control and other division cost reduction programs; methods for establishment of value control goals and optimum levels of efforts; analysis of value engineering/value control effectiveness for incentive type contracts and direct funding type contracts; uniform methods of reporting value control savings to customers and Corporate headquarters; a review of divisional value control plans and goals.

Delegates will be sent by Canadair Limited, Convair, Astronautics, Pomona, Fort Worth, General Atomic, Electronics-San Diego, Electronics-Rochester, Stromberg-Carlson, Electric Boat, Electro Dynamic.

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SAN DIEGO EDITION
(Serving GD/CONVAIR
and GD/ELECTRONICS)

GENERAL DYNAMICS NEWS

Vol. 17, No. 10 PUBLISHED BY GENERAL DYNAMICS CORPORATION 52 Wednesday, May 6, 1964

Sales Increase, Lewis Reports

Sales, pre-tax profits and net profits of General Dynamics Corporation for the first quarter of 1964 were all up over the comparable quarter of the year before, Roger Lewis, president, told the annual stock holders meeting last month.

Sales for the first quarter of 1964 amounted to $377-million, an 8 per cent increase over the first quarter of last year.

Profit before taxes for the latest period amounted to $14.1-million compared with $8.8-million in the first quarter of the year before. Consolidated net income for the three months ending March 31, 1964, Lewis said, was $7,290,000, equivalent to 61 cents per common share after provision for preferred dividends equivalent to 12 cents per common share.

Lewis noted that no provision for Federal income tax had been required in the year-before period due to the losses carried forward from 1961 but that currently the company is providing for income taxes on all its earnings. Therefore, the reported earnings for the first quarter of 1963 have been restated for comparison purposes with those of the latest period to include provision for income taxes in both periods.

Lewis emphasized that the 61 cents per common share for this year's first quarter was after provision for preferred dividends while the restated 49 cents for the first quarter of 1963 required no provision for preferred dividends.

Due to the improved financial picture of the company, restrictions previously included in long term debt agreements, which prohibited payments of dividends on any class of stock, have been removed and reasonable dividend payments are now permitted.

Lewis added that the directors and management of General Dynamics hope to resume dividend payments "just as soon as they are assured that the improvement in the company's overall financial structure and earnings projections for the future so warrant."

However, Lewis added, he could not at this stage make any statement as to when this action could be taken.

Among major new programs, Lewis said, the development of the F-111 variable sweep wing bi-service tactical fighter is on schedule and the company expects to deliver—within the contract dates — an airplane which meets or exceeds the requirements of the Department of Defense in all significant respects.

He also noted that the development of the Redeye man-carried anti-aircraft missile has proceeded to the point where the company has received contracts to prepare for quantity production.

The annual meeting of General Dynamics this year was held at New London, Conn., near the company's big nuclear-submarine building division. For the past decade the company had been holding its share owner meetings in Delaware. Lewis said that the current plan is to hold future share owner meetings at other locations where General Dynamics has major operations.

All directors were re-elected.

Computer Technique Applied To Estimating Spares Price

Eight months of combined effort by three General Dynamics/Convair departments has resulted in a breakthrough believed unique in industry as modern electronic computer techniques are successfully applied to pricing spare parts.

The new technique, Electronic Assisted Spares Estimating, called EASE (pronounced "easy"), was developed cooperatively by data processing, systems and procedures, and spares estimating.

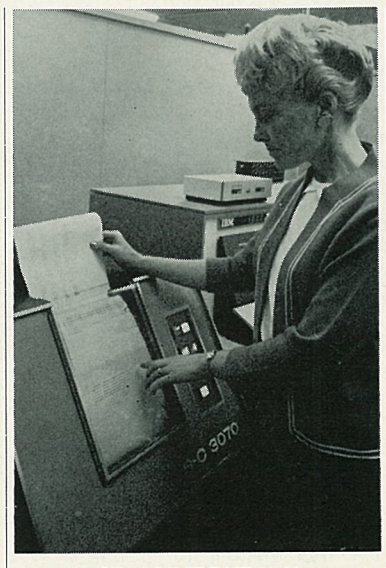
The program, now in operation, has put into the electronic brain of the IBM computer the hundreds and thousands of calculations formerly done by estimators on manual calculators.

W. W. Whittier, spares estimating supervisor, says: "This is a giant step into modern technology for our pricing operation.

"Pricing of spares is infinitely more complex than pricing of an entire airplane, for instance. Each part must be priced individually

(Continued on Page 2)

WHO SAID "EASY"?—Chuck Lee (center) of data processing shudders at mass of details shown him by Al Wolfson, systems and procedures analyst, (left), and Bill Minando, spares estimating assistant supervisor, during programming stages of new computerized system for spares estimating.



DIRECT PRINTOUT—Margaret Clark observes GD/Electronics-SD's S-C 3070 Electronic Printer in use for first time on-line with IBM 1620 computer. Printer transforms computer output directly to printed pages, eliminating need for punched cards.

Printer Linked To Computer

GD/Electronics-San Diego has announced successful use of the S-C 3070 Electronic Printer as an on-line output device for the IBM 1620 computer.

The S-C 3070 can be easily connected to the computer's paper tape channel to print the computer output at speeds of 315 to 500 lines per minute at 80 characters per line.

The non-impact printer utilizes the latest electrostatic printing techniques which enable it to transform computer output directly to printed pages of alpha-numeric data. A major advantage of using the extremely quiet printer on-line is that it completely eliminates the necessity for punched cards as an interim step in the computer printout function.

In addition to speeding up normal printout, the S-C 3070 greatly expands the scope and usefulness of the 1620 computer by significantly increasing the availability of the system to the user. For instance, a programmer can have all of his FORTRAN statements printed out as his program is being processed without slowing the run more than 8 seconds per page.

Also, a program trace may be run for a typical FORTRAN program, printing the results of 600 arithmetic statements in 1.2 minutes, compared to 4.8 minutes for the card punch and 25 minutes for a typewriter.

The S-C 3070's printing process takes full advantage of the high speed and resolution characteristics of the CHARACTRON® Shaped Beam Tube.

Mgt. Club Will Dance At Sands Sat. Night

Only a couple of days remain for GD/Convair Management Club members to get their tickets for the group's big event—the annual Spring Dance.

Dance date is this Saturday night (May 9) at the Sands Hotel, Clairemont Mesa Drive near Highway 395. Members and their ladies will dance to Paul Ravino's orchestra.

Corsages will go to all the ladies. Door prizes and raffle prizes will be given out during the evening.

Tickets are on sale at $1.25 each at all ticket outlets.

Sponsoring are Depts. 5, 23, 25, 27, 28, 400, 401, 423.

Convair Leads All Divisions In ES, CIPs

General Dynamics divisions saved over $2 million through Employee Suggestion programs alone during 1963, and will boost that to $3 million in 1964, according to established goals, A. A. Hendrix, Corporate vice president-industrial relations, reported recently.

GD/Convair topped all divisions in dollar savings through Employee Suggestions and Cost Improvement Proposals. Its grand total was $648,580. That figure broke down to $14,634 for each 100 employees, also a record for the year.

GD/Fort Worth was runner-up in total savings with $545,277, while GD/Electronics-San Diego had second highest amount of savings per 100 employees — $8,168.

GD/E-SD also had best participation with 16.7 of each 100 submitting suggestions. GD/Pomona was next with 14 per 100, and Convair stood third with 13.

GD/Pomona had most suggestions submitted (44 per 100 employees), and the greatest number approved—12 for each 100 employees.

Hendrix, in his announcement of GD/Convair's record standings, said:

"Considering the operating conditions you were faced with during 1963, your suggestion prgram has shown some outstanding results . . .

"But all of us need to improve in the number of suggestions received and the number of different employees who submit suggestions. If you can get the kind of savings you did during 1963 when only 13 out of 100 submitted suggestions, think what could be done if every employee submitted one—or more—suggestion.

In lauding Convair for its ES/CIP savings record during 1963, Division President J. H. Famme said: "Our success depends to a large degree on our ingenuity in creating new and cheaper methods of performing our tasks. Keep up the good work and let's stay on top in 1964."

You will note that the average for the automobile/aviation industry was 162 suggestions per 100 employees, so it can be done.

"You have done an excellent job in 1963; keep up the good work in 1964."

★ ★ ★

GD/Convair already has passed the half-way mark toward its 1964 target for ES/CIP savings.

Goal set for 1964 is $641,500. In the first three months, ESs and CIPs were credited with $379,000 in savings.

Vic Janusz, responsible for the division's suggestion program, predicts that there is little doubt that GD/Convair will push well beyond its year's goal.

"Quality and size of suggestions from both flat-salaried and hourly people are increasing constantly," he remarked. "Ratio of

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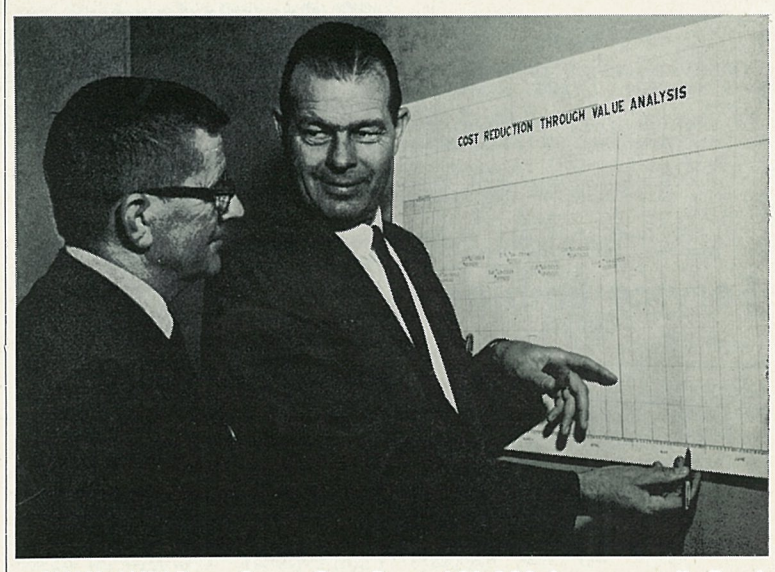


WAY AHEAD — Gerry Cox, Dept. 101-102 foreman, tells Frank Blair, superintendent of fabrication, that departments are month ahead of CIP goal they set for themselves this year.

$750 a Day Savings Anticipated Through CIPs From Depts. 101, 102

One GD/Convair production operation has set its own individual savings target expected from its flat-salaried employees during this year.

Sheet metal and processing (Depts. 101-102), under Gerry Cox, foreman, say that at least $750 a day, each working day of the year, should be saved through CIPs.

In fact, as of April 24, daily savings through CIPs already approved had reached $1,028 a day!

In 82 working days $84,307 savings were chalked up through eight CIPs. At least half a dozen other proposals are pending.

Well ahead of the goal of $190,500 for the year, Depts. 101-102 are confident that they have a good chance of topping all production departments again in the ES/CIP race. (Dept. 101 quadrupled its established goal last year.)

The six who will be on their toes every minute if they fulfill their pledge are: Cox, H. A. Mohr, Bob Gowdy, Tony Berardini, H. M. Woodard, Gerry Oliver—all steady suggesters.

Charles M. Szymczak, Dept. 101, last month received 30-year service emblem and congratulations from GD/Convair President J. H. Famme.

GD/E Plastics Lab Keeps Ahead Of Rivals by Experimenting

Big dishes, little dishes, square ones and round ones are all in the day's work in General Dynamics/Electronics — San Diego advanced plastics laboratory.

In the three years that GD/E has been in the plastics business, the lab has reached the enviable point of being able to turn out any type of fiber glass object, regardless of shape, size, or kind of resin required.

R. J. Hogan, supervisor of the plastics operation, says that GD/E's lab is not only well abreast of the state of the art in the fast-moving industry, with ever-changing materials and processes, but also keeping ahead of the pack with continuous research and experimentation.

"Our technical knowledge, hand in hand with the high capabilities of our personnel, which are far beyond those of the average plastic fabricator, have put us in the position of being able to turn out the 'hard-to-make' products," commented Hogan, who, himself, has had a wide plastics background. In his own words, he "grew up" with the industry during the 14 years he directed the plastics section of the Convair experimental model shop. He was elected to establish the GD/E plastics laboratory in spring of 1961.

And, experience and imagination are the key words of the dozen expert plastics workers assigned to the GD/E lab. All fabricators and technicians have been in the business from five to 10 years and are especially versed in forming fiber glass radars in their work with such GD/E Electronics' products as REINS radar assemblies, Terrain Following Radar, and Astro telemetering antennas and their accompanying duct work and shrouding.

The GD/E lab turns out a variety of radomes, antenna dishes and shrouds, radar feedomes (covers for the feed), cooling ducts, silencers, muffler ducts, housings in many odd configurations to fit any type of assembly.

Four main types of resins are used in fiber glass layup. These are silicones, polyesters, epoxies, phenolics for different structures and purposes. In addition, various kinds of foam materials are used.

GD/E plastics technicians carry on their own engineering development work, conceiving and building their own tooling; and in conjunction with production engineers, research and investigate new techniques.

J. P. Morris, manager of production engineering, agrees with Hogan that there is no limit to possibilities in use of plastics as more and more products are made of fiber glass—and GD/E's lab is right there with the know-how to produce them.

GD/Convair men wearing new 25-year emblems are from left, R. L. Phillippi, Dept. 6-21; G. A. DeMarino, Dept. 25-5; W. C. Roberts, Dept. 6-31.

SPORTS CAR FANS TO MEET TONIGHT

CRA Sports Car members will hold their regular monthly meeting tonight (May 6) at 7:30 p.m. in executive dining room of the Convair cafeteria. Commissioner Gerry Wright urges all members and interested Convair and GD/E sports car owners to attend.

"EASE" OUTLINED—W. W. Whittier, GD/Convair spares estimating supervisor, explains division's new electronic technique for estimating spares, Electronic Assisted Spares Estimating, to AF and Navy officials and other Convair personnel, from left, F. J. Wright, LCdr. L. S. Butler, Edward Hale, BUWEPSREP office; B. J. Eldredge, AF contracting officer of SD contract management district; Alan Wolfson, systems and procedures; Whittier; William Minando, spares estimating; W. M. Lisec, AF chief of pricing, SD contract management district; Jack Dumas and Fred Kennie, service parts; John Milling, Convair controller.

Computer Technique Applied To Estimating Spares Price

(Continued from Page 1)

on the base of material and labor involved and quantity ordered, since fixed costs must be spread over the number made at any one time.

"Our estimators and many of the parts listers were spending at least half their time feeding numbers into calculators."

An average spare part order requires up to 200 computations, and a complex estimate covering 40 or 50 pages can mean calculations running into the thousands. After the original computation, each estimate had to be audited on comptometers to spot errors.

With all of these manual calculations taken over by the electronic computer, estimators can do the job they are hired to do—estimating, Whittier stressed.

"Relieved of the time-consuming drudgery of operating calculators, they can use their talents and time for analyzing the vast amount of detailed information we can get from the computer; for investigation of production methods, material; for careful study of blueprints—and all the groundwork which should go with pricing, but for which time was not always available."

EASE is one of the more complex programs in GD/Convair's data processing operations because of the many variables involved, said G. O. Withem, chief of data processing. However, now that all the programming is complete—it took 800 manhours for programming both military and commercial spares—the fantastic speed of the computer will turn out quick answers, which before took many laborious hours. The IBM computer can make 3,000 calculations and print-outs in less than 2 minutes!

Withem especially lauded the team of Alan Wolfson of systems and procedures, C. G. Lee of data processing, and William Minando of spares estimating for the "wonderful job they did in getting this system designed and operating."

"This is exactly the kind of team work that benefits the company as a whole," Withem continued as he pointed out that EASE offers opportunities for savings to Convair by giving management more current and accurate information mathematically correlated and interpreted to a degree impossible by manual method.

H. L. Henrie, chief of program plans and systems, heartily concurred with Withem in crediting cooperation with successful resolution of a difficult problem. "Systems and procedures must be the middleman in assisting functions to streamline and improve their controls. Our job is to live and work with an operation, as Al Wolfson did for four months with spares estimating learning their routines and difficulties before he could start tracing the steps involved. Then, we must be able to interpret the situation and needs to data processing while working out a completely new electronic application. The only possible way to reach a satisfactory solution, is to work together."

System development was begun in July of 1963. First actual estimates were processed through the computer the middle of last month. So far, most of the military spares, including those for C-141 and Little Joe II, now are being priced by the electronic system. Commercial spares for twin-engine Convair-Liners and four-engine jet transports will be put into the computer by the first of July, when updated formulas go into effect.

Among the many improvements EASE is expected to provide are: increased speed of quotation preparation, improved accuracy of calculations, more profitable use of time by estimators and parts listers, easier processing of changes and re-estimating, better historical data, more detailed cost and price data, automatic input to service parts and cost control.

Log Book Entries

Papers Presented

CONVAIR

CONOLLY—Alan C., Dept. 6-53. "Results of Recent Hydrofoil Work at GD/Convair," American Institute of Aeronautics and Astronautics Symposium, New York, April 24.

STRAND—Torstein, technical assistant to vice president—engineering. "On the Theory of Normal Ground Impingement of Axi-Symmetric Jets in Inviscid Incompressible Flow," American Institute of Aeronautics and Astronautics Symposium, New York, April 27.

ELECTRONICS - SD

COOPER—Harry G., requirements engineer. "Computer to Microfilm, A New Era," National Microfilm Association 1964 convention, Philadelphia, Pa., April 29.

Awards

CONVAIR

Employee Suggestion Awards approved for periods April 17 and April 24.

Dept. 101. L. Budzynski (two awards). $54.80 and $85.70.

Dept. 102, F. M. Baxter (two awards), $56.50 and $10; R. A. Davis, $10.

Dept. 128, V Breit, $32.30; M. H. Hill, $121.80; E. G. Mize (two awards), $16.30 and $10.

Dept. 131, C. R. Yokley, $145.20.

Dept. 141, M. M. Doerr and R. B. Maddox (joint award), $132.50 each.

Cost Improvement Proposals approved for the same periods.

Dept. 14, J. J. Janssen.
Dept. 42, H. C. Leppart.
Dept. 119, L. W. Stamper.
Dept. 141, E. E. Miller.

Retirements

CONVAIR

ANDERSON—Pauline E., Dept. 171. Seniority date June 19, 1950, retired April 20.

GIUSTI—Charles U., Dept. 25-4. Seniority date May 19, 1952, retired April 24.

HINTON—Forrest L., Dept. 91-7. Seniority date Feb. 19, 1951, retired April 25.

LOPEZ—Frank Sr., Dept. 115. Seniority date Nov. 7, 1951, retired Nov. 2, 1963.

MARBOURG—Louis R., Dept. 140. Seniority date Sept. 9, 1947, retired March 12.

SELLECK—George R., Dept. 197-8. Seniority date March 4, 1952, retired April 15.

ZULICK—Jacob, Dept. 115. Seniority date Sept. 16, 1953, retired April 17.

Service Emblems

CONVAIR

Service emblems due during the period May 1 through May 15.

Thirty-year: Dept. 131, Paul DiGiulio.

Twenty-year: Dept. 14-5, E. W. Blodgett, Roberta J. Grand; Dept. 400-1, C. F. Hanson; Dept. 401-4, D. O. Stephenson.

Fifteen-year: Dept. 6, Louise B. Ellis, C. N. Walter; Dept. 16-1, Doris B. Arnott, H. L. Ashton; Dept. 48-36, R. H. Collins; Dept. 102, Sylvia R. Trepina.

Ten-year: Dept. 6, R. H. Chausse, E. J. Velton; Dept. 16-6, Dolores J. Ries.

ELECTRONICS

Twenty-year: Dept. 25-00, M. L. Barksdale.

Ten-year: Dept. 41-30, Leslie Phillips; Dept. 71-00, G. L. Payne Jr.

Scholarships Go To Eleven

Nine General Dynamics sons and two GD daughters have received General Dynamics Corporation Merit Scholarships for the year 1964, Algie A. Hendrix, General Dynamics vice president-industrial relations, announced late last month.

GD/Astronautics had three winners. General Atomic and GD/Pomona each had two. One each are from GD/Convair, GD/Electronics-SD, GD/Fort Worth and Electric Boat division.

All of the young people are top students and at the head of the list in National Merit Scholarship qualifying tests. They will receive scholarships ranging in amounts from $1,000 to $6,000, spread over their four college years.

Winners are:

Astronautics—Thomas David Crouch, son of Mr. and Mrs. Kenneth L. Crouch; Dean Maynard Sandin, son of Mr. and Mrs. Dean H. Sandin; Robert W. Franson, son of Mr. and Mrs. Wilfred R. Franson.

Convair—Byran C. Cheney, son of Mr. and Mrs. Harold K. Cheney.

Electric Boat—David Carl Erik-

(Continued on Page 6)

GD/Convair Leads In Total CIPs, ESs

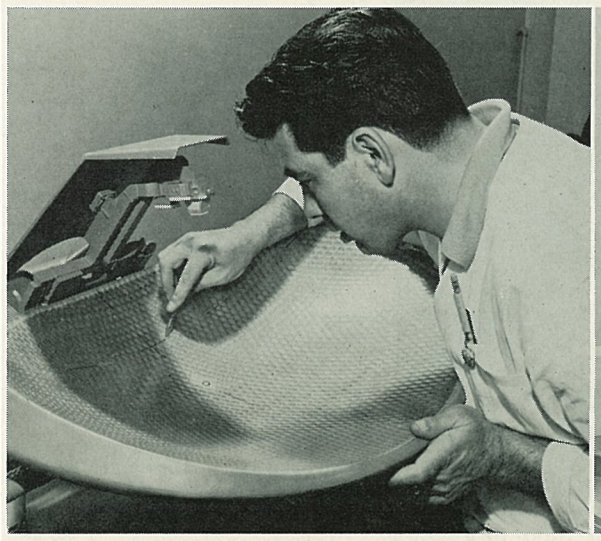
(Continued from Page 1)

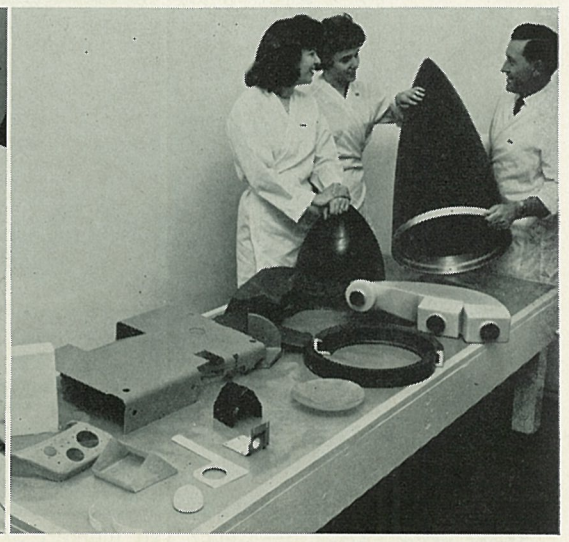
accepted suggestions has reached well over 40 per cent of all submitted. In one week in April alone, we processed 22 suggestions, with nearly half approved for installation.

"And, what is most encouraging, we have more and more steady suggesters turning in imaginative and realistic ideas all the time."

TECHNICAL ARTICLE EARNS $150 AWARD

M. D. Weisinger, manufacturing development specialist at GD/Convair, is latest to receive a division $150 Writing Award for a published technical article. Weisinger's paper, "Commercial Laser Welding Will First Be Applied to Teeny-Tiny Parts," appeared in the April issue of the Society of Automotive Engineers Journal.





VERSATILE — At right, Supervisor Bob Hogan of GD/Electronics - SD plastics fabrication shows Fran Plumley and Linda Brooks many shapes and sizes of fiber glass products turned out in advanced lab. At left, Rudy Narvaez, GD/E plastics mechanic, smooths out irregularities in fiber glass dish as he prepares it for protective plastic coating.

General Dynamics NEWS

Published by General Dynamics Corporation, One Rockefeller Plaza, New York 20, N. Y.; with editorial headquarters at 3302 Pacific Highway, San Diego 12, Calif., P.O. Box 1950, telephone 296-6611, ext. 1071. Logan Jenkins, editor-in-chief.

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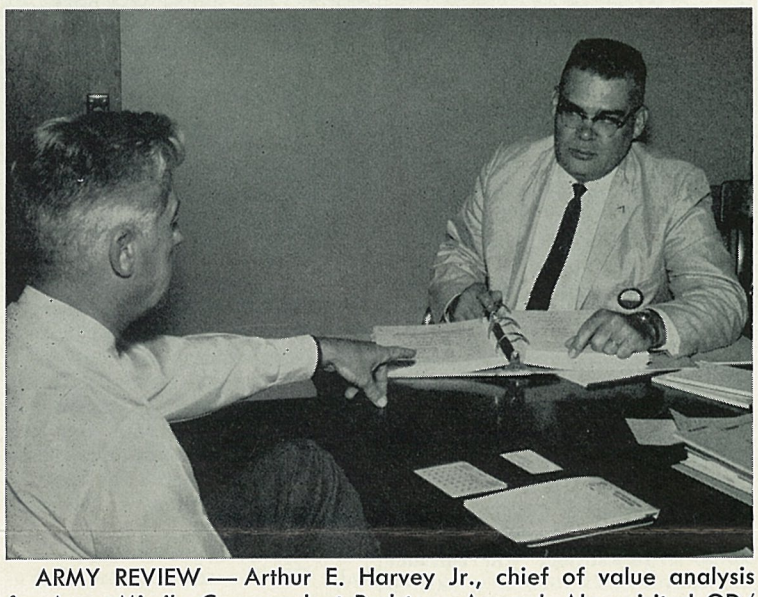
Affiliated editions of General Dynamics NEWS are published in Rochester, N. Y., covering GD/Electronics and Stromberg-Carlson, editorial offices, 100 Carlson Road, HUbbard 2-2200, ext. 2555. Fred E. Voss, editor; and at Groton, Conn., covering GD/Electric Boat, editorial offices at Groton, HIlltop 5-4321, ext. 300 and 513, Joseph Tracey, editor.

DISTINGUISHED VISITOR — Pictured during tour of GD/Astronautics facilities last month is George E. Fouch, Deputy Assistant Secretary of Defense, second from left. Acting as hosts during factory tour are E. D. Heller, Astro manager of cost reduction and value control, left; E. D. Bryant, Astro vice president - operations, second from right; and J. P. Hopman, Astro factory manager.



ARMY REVIEW — Arthur E. Harvey Jr., chief of value analysis for Army Missile Command at Redstone Arsenal, Ala., visited GD/Pomona last month to review value engineering plans for Redeye industrial program. At left is C. C. Frankenberger of GD/Pomona's Redeye program management office (Dept. 15).

Two Score More Join Growing Ranks Of Value Engineering Seminar Grads

Forty more GD/Astronautics employees last month joined the ranks of value engineering seminar graduates as the division's fourth two-week training program of the year drew to a close.

Formed into five-man teams, each directed by an experienced project leader, seminar participants were indoctrinated in fundamentals of VE techniques; then they applied these to projects submitted by GD/Astro departments.

In this seminar, a team for the first time tackled an administrative project—in this case, the "Make or Buy Authorization."

Successful application of VE to "software" as well as hardware was demonstrated in information presentations of seminar projects to management at the concluding session, when all teams submitted value improvement suggestions.

Seminar instructor was Everett Lindem of educational services (Dept. 130-3), assisted by Hal Sicard, also of the training group.

Team #1. Fuel tank diffusor dome (submitted by SLV). C. H. Kelley, Dept. 665-1; D. E. Evanson, Dept. 403-3; W. R. Hall, Dept. 860-0; J. J. Heilman, Dept. 032-2; M. D. Wolfe, Dept. 731-0. Project leader, J. W. Grochowski, Dept. 561-3.

Team #2. Harness tray (submitted by engineering). R. F. Nelson, Dept. 588-1; C. L. Hinton, Dept. 403-3; L. A. Milton, Dept. 146-0; D. Oliver, Dept. 662-8; B. L. Warren, Dept. 987-3. Project leader, Grochowski.

Team #3. Brake assy. dampener, LOX (submitted by operations). R. C. Huyett, Dept. 581-4; H. R. MacDonald, Dept. 528-2; R. Newman, Dept. 462-0; M. J. Seebach, Dept. 145-2; D. E. Simth, Dept. 835-3. Project leader, Alex Rohr, Dept. 403-3.

Team #4. Make or buy authorization (submitted by operations). E. P. Aquilera, Dept. 528-3; W. I. Hodge, Dept. 250-2; J. J. Janzen, Dept. 373-9; T. L. Lamoureux, Dept. 142-4; M. P. Trego, Dept. 588-3. Project leader, Rohr.

Team #5. LOX topping elbow (submitted by operations). C. D. Flowers, Dept. 403-3; D. J. Gallagher, Dept. 831-0; H. E. LaNois, Dept. 662-7; R. T. Mulroy, Dept. 404-1; P. H. Schaaf, Dept. 558-5. Project leader, J. C. Lievens, Dept. 373-3.

Team #6. C-band antenna assy. (submitted by operations). G. P. Nichols, Dept. 380-6; F. Budz, Dept. 780-3; R. P. Dodds, Dept. 557-3; J. X. Mulvey, Dept. 582-4; R. Garriott, Dept. 549-9. Project leader, Lievens.

Team #7. B-1 cableway covers (submitted by AWS). L. Duncan, Dept. 549-9; Lea Heyob, Dept. 403-3; J. D. Powell, Dept. 375-3; D. C. Remsnyder, Dept. 582-5; J. J. Strachen, Dept. 581-1. Project leader, H. T. Sicard, Dept. 130-3.

Team #8. Oxidizer start tank vent fitting (submitted by operations). A. J. Gunther, Dept. 813-0; A. R. Jensen, Dept. 662-3; R. E. Mannion, Dept. 503-0; E. W. McPherson, Dept. 758-0; D. L. Swingle, Dept. 373-7. Project leader, Sicard.

DOD'S FOUCH URGES 'URGENT ATTITUDE' TOWARD VALUE ENG.

An analysis of Defense Department attitudes toward value engineering and a challenge to exploit VE techniques to their fullest potentials was presented to GD/Astronautics management at President J. R. Dempsey's monthly meeting for supervision April 22.

Speaker was George E. Fouch, Deputy Assistant Secretary of Defense, who addressed the meeting at the conclusion of a one-day visit and tour of GD/Astro facilities.

Fouch explained that the DOD commitment to VE was aimed directly at "more defense for fewer tax dollars."

Far from being a threat, he said, this policy can aid industry, since a good VE program, intelligently applied, can (1) increase profit, (2) strengthen a company's competitive position, and (3) provide a solid means of documenting profits which result from extra management effort.

Fouch explained that value engineering is not for hardware alone—that "software" too, can profit from its techniques. Nor, he said, is it a "second look" program, but rather one which must be diligently applied in all stages of a project.

Fouch cautioned that reliability and maintainability so essential to combat readiness of any weapon system cannot be overlooked as value engineering "fringe benefits."

In fiscal year 1963, he said, DOD has realized savings of $18 million per quarter from VE!

DOD intends to refine and expand the program, he said, and industry will be encouraged to adopt an attitude of urgency toward VE.

In a concluding challenge to his audience, Fouch termed value engineering a management technique which must be thoroughly understood, accepted and used to be fully effective.

He urged that it be free of special interest; that management be prepared to render prompt decisions on VE proposals.

FORTY MORE — Graduates of GD/Astro Value Engineering Seminar 4-64, pictured here, made project presentations to management and received completion certificates April 24. Training program is expected to graduate 40 employees per month throughout year.

TOP LEVEL VE TALK—General Dynamics value engineering and cost reduction leaders gather at GD/Convair plant, San Diego, Calif., for third GD Value Control Seminar last week, April 27-28. Addressing group is Chairman J. Y. McClure, director reliability, quality control, value control for Corporation.

USAF Value Engineering Chief Addresses Joint GD Seminar

"Contractual Aspects of Value Engineering," was discussed by Harley Witham, head of value engineering, Aeronautical Systems Division, Systems Command, USAF, Washington, D.C., main speaker at the General Dynamics Value Control Seminar held in San Diego last week, April 27-28.

J. Y. McClure, Corporate director of reliability, quality control, and value control, was chairman of the two-day conference, attended by 14 delegates from 10 GD divisions and Corporate Office.

D. C. Wilkens Jr., assistant to Convair President J. H. Famme, welcomed visitors. Astronautics and Convair shared host duties.

Topics dealt with vital cost reduction and value engineering areas. R. C. O'Sullivan, Corporate director of cost analysis, opened the program with discussion of "Corporate Cost Reduction Program Plans and Elements." He also spoke later on "Guides for Uniform Calculation and Reporting of Value Control Savings to Customers and Corporate Office."

"Guides for the Use of Value Engineering Clauses in Conjunction with Incentive Contracts and Direct Funded Contracts," were outlined by R. A. Wohl, GD assistant to vice president — contracts.

Harlon Filloon of GD/Pomona spoke on "Adjudication and Authorization of Value Control and Other Cost Reduction Projects," and "Cost Targets — Division Management Use of, in Assigning Department Goals and Action Responsibility: The Redeye Case History."

"How to Secure Management Support and Motivation for Value Control Programs," was subject of C. W. Doyle of GD/Fort Worth. W. H. Parry of GD/Convair spoke on "Procurement Value Control," followed by W. B. Roberson, also GD/FW, whose topic was "Optimum Value Through Work Measurement, Simplification, and Crew Loading."

H. P. Williams of GD/Convair and M. M. Reeder, GD/Electronics—SD, discussed "The Problems of Cost Goals for Research and Development Products."

"How to Expedite Company and Customer Approval Action on Value Engineering Proposals," was outlined by H. E. Peterson of Electric Boat.

E. D. Heller, GD/Astronautics, spoke on "How to Minimize Cost Increases as Opposed to Maximizing Cost Reduction."

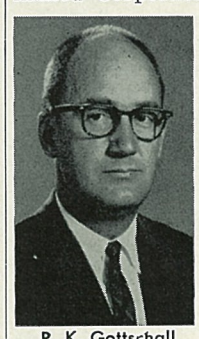
W. P. Karas of Stromberg-Carlson gave value engineering guides, including cost savings, for design engineers, while J. H. Hill of GD/Electronics—Rochester continued with a discussion of design aids for cost control.

Doyle and Williams monitored presentations and discussions of the various divisions' training programs.

Other delegates, besides those named, were F. H. McNeely and R. F. O. Smith of Canadair Limited.

GOTTSCHALL NOW CORP. AD DIRECTOR

Richard K. Gottschall, manager of communication for GD/Convair division since 1961, has been named Corporate director of advertising, reporting to P. J. Sullivan, Corporate vice president in the New York office.



R. K. Gottschall

Division public relations responsibilities, which were a part of the functions reporting to Gottschall, will be assumed for Convair by Fred J. Bettinger, reporting to D. C. Wilkens Jr.

Gottschall joined the company in 1954 as manager of public information on the Corporate level on the West Coast, following a career in journalism on the staffs of the Salt Lake City Tribune and later the San Diego Union. A 1938 graduate of the University of Missouri, Gottschall saw wartime combat duty in the European theater as a captain.

Bettinger, a Marquette University graduate, joined General Dynamics in 1958 following U. S. Navy duty on the West Coast. He was a staff member of **General Dynamics NEWS** before transferring to Convair division as a public relations coordinator in 1961.

HARBERT NAMED TO STAFF POSITION

Assignment of R. C. Harbert to a staff position reporting to E. D. Bryant, vice president-operations, has been announced at GD/Astronautics. Bryant indicated Harbert will coordinate Astro's performance measurement program within operations.

Value Engineering Graduates Increase

General Dynamics' growing ranks of value engineering/value control graduates were swelled to over 3,900 following conclusion of GD/Astro's April seminar.

GD/Fort Worth leads all divisions with 1,060. GD/Astro's one-a-month schedule during the current year has boosted its total to near the 1,000 mark, including those attending orientation sessions. GD/Convair's 21st seminar ended last week, adding 20 more to the over 800 already indoctrinated. GD/Pomona graduated 37 in a March seminar, bringing value control trainees to over 900. GD/Electronics at San Diego has 100 with full workshop training.

PLANNERS — This group is directly responsible for administering ARA's popular Wives' Club activities. Seated from left, Lou Nordick, first vice president; Carol Herman, second vice president; Georgia Hatfield, president; and Margaret Brock, secretary. Standing are board members, from left, Evelyn Morefield, Cay Redlein, Helen Ohland, Audrey White, Maxine Stussy, Lucille Koehne and Ethel Bergelaitis.

More Than 1,500 Roses Entered In ARA-CRA Garden Clubs' Show

Although rainy weather trimmed spectator attendance, records for participation were shattered during the Rose Show April 19 in Balboa Park's Floral Assn. Bldg. by ARA and CRA Garden Clubs.

More than 1,500 roses were displayed by GD/E, GD/Convair and GD/Astro folk!

They entered 247 single blooms, 164 three-bloom entries, 74 arrangements, 28 corsages, and ten children's entries. Prizes and ribbons went to all winners.

Best of Show awards went to Ora Carpenter, best rose; R. S. Davis, best three blooms; Jennymae Williams, best grandiflora; H. S. Boyd, best three grandiflora; Grace Zimmerman, best floribunda; John Volper, best design arrangement; Mrs. F. White, best bouquet; Rose Hart, best corsage; and Ronnie Lewis, son of Charles Lewis, best children's entry.

Winners of first place honors were:

GD/Convair's Dennis Zimmerman, Clayton Finley, Warren J. Cole, Lora Lee Young, Esther Barksdale, Carol Ulrey, C. W. Begeman (ret.), Margaret Boyd E. L. Zimmerman, M. L. Barksdale and Janice Zimmerman.

GD/Astro's J. H. Powell, Mrs. H. Young, C. J. Lewis Jr., S. J. Williams, C. H. Splinter, Carolyn Buman, R. A. Dirkschneider, James Buman, Arnold Carroll, Mildred Clark, Charles Ulrey and O. J. Wilhams.

BONDS PRESENTED TO DOLD FAMILY

General Dynamics friends of Walt Dold of GD/Convair Dept. 28, killed in a March 30 automobile accident near Oceanside, have given a $100 U. S. Savings Bond to each of five children.

Spearheaded by Dold's own department, Convair systems and procedures, $380 was collected. Donating were 289 friends and co-workers of Dold, most of Convair, but also at GD/Astro and GD/Electronics.

Chuck Twohey and Al Wolfson of Dept. 28 made the presentation to Walter Scott III, 12; Kathyleen Ann, 11 this month; Gail Ann, almost 9; Raymond Harry, nearly 2; and four-months-old Patrick Michael.

GD/E-SD Daughter To Graduate No. 1

Jean Turnage, daughter of R. E. Turnage Jr., manager of electronic design at GD/Electronics-San Diego, is graduating as number one student in her class at Madison High School.

She earned top spot in the class on the basis of grade averages throughout her senior year, and academic distinction honors for completing a prescribed number of more advanced and difficult courses than the standard ones for average students. The class of 1964 is first to be graduated from the two-year-old Madison High in Clairemont district, San Diego.

Jean, 16, plans to enter either Pomona College or Scripps College at Claremont, Calif., this fall.

"If I don't move them soon their food bill will bankrupt me."

3,900 mi. Deployment Scored With F-106s

Longest deployment ever attempted with Convair F-106s was made recently when jet interceptors from Air Defense Command's 1st Fighter Wing at Selfridge AFB, Mich., were flown to Elmendorf AFB, Alaska, a distance of over 3,900 miles. En route stops were made at Minot AFB, N. D., and McChord AFB, Wash.

Participating in project "White Shoes," the jet interceptors from 71st Fighter-Interceptor Squadron, Selfridge, replaced F-106s and crews from 498th and 318th FISs, McChord, sent to Elmendorf last July.

"White Shoes" is a joint exercise of ADC and Alaskan Air Command proving the operational feasibility of rotating fighter interceptors to provide a vital area, such as Alaska, with an advanced defensive capability.

Mfg. Development Offices Relocated

Manufacturing research and development offices at GD/Convair were moved last week from Room 39 on Bldg. 1's ground floor to the south end of Bldg. 1 mezzanine.

E. W. Feddersen and M. D. Weisinger occupy offices in the southwest section with other personnel located in the open area formerly occupied by tool project engineering.

Extensions and mail zone remain the same. Feddersen's extension is 2077; Weisinger's, 2587. Mail zone is 23-10.

SALVAGE YARD SCHEDULE SET

Convair's salvage yard, adjacent to Gate 5 at Plant 1, will be open for employee sales from 8 a.m. until noon on the mornings of May 9 and May 23.

Winners Few At Trapshoot

Winners were scarce at CRA-ARA Gun Club's Troy trapshoot, held the last Sunday in April, with the big prize dangling just out of reach.

Of the dozen competing, only three went home richer. CRA Commissioner Jack Swank made expenses by tying in both 16-yd. and high score. He got a total of $9.

Swank and Jim Prewitt both shot a perfect 25 straight in the 16-yd. for $4.50 each. Jack Rogers and Swank won $4.50 apiece for high scores of 45. No one shot 25 straight in the handicap event and the $127.75 stake for the combined perfect score went unclaimed.

The pot's been sweetened to $136.75 for the combined winner, if any, at the next Troy shoot May 31. In all, there is now $173.50 awaiting winners.

Gun Club's next big shoot at Gillespie Field Range will be a registered ATA trapshoot May 17. Competition begins at 10 a.m. with practice traps open at 8:30 a.m. Silver service prizes, including such items as cassaroles, lazy Susans, coffee servers and trays will go to winners in each classification.

Colvin Is Speaker At Chapter Meeting

Members of the San Diego Chapter, Armed Forces Communications and Electronics Association, heard J. W. Colvin, manager of plans and programs for GD/Electronics-SD, as main speaker at their April 21 meeting hosted by GD/E.

Colvin's topic was "Coextensive Progress of Communications and Travel."

About 40 AFCEA members from San Diego industries, businesses, and military installations gathered at GD/E Plant 2 on Hancock St. following the dinner.

Al Aron and Jake Konen of the GD/E service bureau displayed the S-C 4020 Computer Recorder; A. F. Casey, S-C 1090 project engineer, demonstrated the computer display console, while R. E. Thoman, IMCC project engineer, described GD/E equipment going into NASA's Integrated Mission Control Center, Houston, Tex.

"Mark of Man," GD/E's film on the S-C 4020, was shown.

Symposium Held On Human Factors

General Dynamics has supplied key figures in the Fifth National Symposium on Human Factors in Electronics meeting yesterday (May 5) and today at the U. S. Grant Hotel, San Diego.

The affair was under the sponsorship of the Institute of Electrical and Electronic Engineers.

Symposium committee members included Wesley Woodson, Eric Herz, Mel Freitag, Bill Davenport and Marlowe Lesh of Astronautics; Donald Conover of Convair; and Robert Bottoms and Paul Athan of Electronics-San Diego.

Taking leading roles in sessions were Astro's Dr. Dave Meister, Larry Fogel, M. J. Walsh, J. M. Lagerwerff, H. D. Fyffe, and R. S. French.

CRA Coin Clubbers Observe Birthday

Over 50 numismatists gathered to celebrate the 11th anniversary of CRA Coin Club April 16 in the main Convair cafeteria.

Seven new members were welcomed into the Convair club the same night. F. B. Wagner of GD/E was appointed vice president to succeed George Stewart, who has left the area.

Steve Ames was named secretary, Wagner's former office.

Next meeting will be May 21 at 7:30 p.m. in the main dining room, south of Bldg. 19. Raffle prize will be a 1901-S half eagle gold piece, valued at $25.

Air Force Industry Trainees Tour Astro and GD/E Plants

Tours of both GD/Astronautics and GD/Electronics-San Diego highlighted a two-day visit last month for Air Force officers assigned to the Education-with-Industry program at west coast industries.

On April 23, visitors were welcomed to GD/Astro by R. A. Evans, manager of personnel administration. During a morning program, they heard comment by Col. M. K. Andresen, AFPR; J. A. Croft, chief of educational services, official host for the visit; and K. A. Schuele.

Management concepts of major GD/Astro functions were described by E. G. Hill, controller; C. W. Blakey, director of contracts; P. D. Ferrara, chief engineer-administration; and E. D. Bryant, vice president-operations.

The second day (April 24) they were introduced to several GD/Electronics' products in presentations at GD/E Plant 1.

J. W. Colvin, manager of plans and programs, welcomed visitors. R. A. Glaeser explained data products in production and under development; J. B. Gehman talked about the Aircraft Station Keeper (ASK) radar; R. F. Schillinger, the Terrain Following Radar. A. R. Zagon gave a presentation on Head-Up display.

Technical Writers Will Hear Creutz

Dr. E. C. Creutz, vice president of research and development for General Atomic, will keynote the 11th annual convention of the Society of Technical Writers and Publishers May 14-16 at San Diego's El Cortez Hotel.

Dr. Creutz will speak on "The New World of Information" at the May 14 luncheon.

Other General Dynamics men are scheduled to take part in the convention which will draw 600 from all parts of the country, and displays from at least 30 firms.

L. J. Solheid, GD/Convair technical publications supervisor and second vice president of the national organization, will conduct the chapter chairmen's workshop first day of the convention. Al Gross, manager of GD/Astro publications, will emcee the Friday luncheon session.

Serving on the convention committee are the following Astro men: James Carr, A. L. Ward, Walter E. Brees, Miles Gordon, James Rowland.

Astro Men Elected To IEEE Positions

Two GD/Astro men have been elected to top offices in professional technical groups of the Institute of Electrical and Electronic Engineers (IEEE).

Milton M. Chazotte is chairman, and Francis M. Millican, vice chairman, of the combined Microwave Theory and Techniques, and Antennas and Propagation professional technical groups (MTT/A&P) for the San Diego area.

Chazotte supervises GD/Astro's antenna and microwave systems group (Dept. 549-9), and Millican is a design specialist with electromagnetic compatability group (Dept. 549-8).

Rosenbaum Gets Key Space Role

Creation of a new GD/Astronautics project organization to concentrate exclusively on manned space systems was publicly announced last week by President J. R. Dempsey.

Emphasis placed upon the new organization is evidenced in the appointment of Mort Rosenbaum as vice president and program director to head the project.

Of Rosenbaum's assignment, Dempsey said, "His career combines the two elements most vital to these systems: long experience with both manned and unmanned systems, and a record of success in managing large and complex technical developments."

To fill Rosenbaum's previous post, R. C. "Sparky" Sebold, long-time General Dynamics executive, has joined GD/Astro as vice president — research, development and engineering.

Four Year Task Nearing Climax

Fourteen General Dynamics men and women are on the last lap of a four-year task which will culminate in completion of the new certificate program in technical writing this spring.

The program, formally established last June, is sponsored jointly by GD/Convair and San Diego Junior Colleges. Educational services, directed by H. W. Rubottom, coordinates the program.

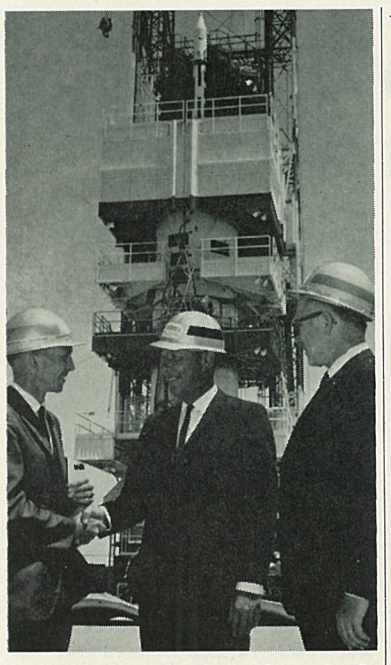
The first "graduating" Convair, GD/Electronics, and Astronautics students entered what was to become the certificated program with the first technical writing class at Convair the summer of 1960. Louie Henderson, instructor, had 30 students in his first Basic Technical Writing course.

Since then, the 14 have taken all five required and two elective technical writing courses listed when the certificated program was formulated. Wayne Turner, educational services coordinator, points out that this semester is the first time anyone could have possibly completed the entire program.

Qualifying for certificates are: Frank Adams, Avery O. Camp, Victoria Eberly, Clarence E. Hitson, Leonard M. Hogoboom, Alexander J. Haefner, Edward C. Jankowski, Stanley S. Kieliszek, Samuel T. Mahone, Lyda McCleary, Eythel Newman, Jeannette O'Brien, William R. Orviek, Andy Puskas.

Besides Henderson, other instructors have been Alan Walden, Francis Linderman, Irving Litchfield, Marvin Feuerborn, and William Stewart.

FIRST GRADUATES — Part of initial group of General Dynamics students in final stages of new Technical Writing Program (on stage) are, from left: A. O. Camp, S. S. Kieliszek, W. R. Orviek, Victoria Eberly, Samuel Mahone, Eythel Newman, Frank Adams, Lyda McCleary, Alexander Haefner, Leonard Hogoboom, Edward Jankowski. Seated are instructors Marvin Feuerborn and Louie Henderson with K. D. Fawcett, SD Jr. Colleges coordinator of technical education, at left, and Wayne Turner, educational services coordinator, at right.



LAUNCH PLANNING — J. B. Hurt (left), program manager of GD/Convair's Little Joe II project, talks over coming firing, second for Little Joe II, with O. L. Todd, in charge of operations support, and Harold K. Cheney, deputy program manager in charge of launch operations, at White Sands Missile Range, N.M., with Little Joe II gantry looming in background. Hurt was on hand to present Todd 15-yr. service emblem on April 22 anniversary date.

FATIGUE RESEARCH CONTRACT AWARDED

A contract for continuation of fatigue research for the Navy, in the amount of $14,540, has been received by General Dynamics/Convair.

The current contract extends studies to develop a method of assessing the effects of cumulative fatigue damage on metallic structures for another six months, beginning April 1. GD/Convair fatigue studies have been conducted over the last two years for the Naval Air Engineering Center, Philadelphia, Pa., under direction of Clarence Smith, fatigue specialist, using the Smith theory of fatigue.

Smith also has just completed a contract for the Air Force to supply material for a report, "Linear Strain Theory and the Smith Method of Predicting Fatigue Life of Structures for Spectrum Loading." The report, designated ARL 64-55, will be published in about a month by Aeronautical Research Laboratory at Wright-Patterson AFB, Ohio, and distributed to industries, governmental agencies, universities both in this country and abroad.

Also, Smith's book, "Tips on Fatigue," prepared under a Navy contract, will be available around the first part of July through the U.S. Bureau of Documents, Washington, D.C.

GD/E-SD Design Chief To Speak For IEEE

Yoshiaki Tamura, chief of theoretical design at GD/Electronics-San Diego, will discuss the Japanese electronics industry at the Institute of Electrical and Electronic Engineers, Cedar Rapids Section, Iowa, May 20.

Y. Tamura

Developing his topic, "Electronics in Japan Today," Tamura will cover the historical background of the Japanese electronics industry, the extent of its dependency on foreign trade, and the anticipated future trend.

Although born in California, Tamura received his early education in Japan. He returned to this country to take his BS in electrical engineering at the University of California and his master's in mathematics at DePaul University.

Free Ticket Entries Close Friday May 15

Friday noon (May 15) is deadline for Convair and GD/E baseball fans to get their names in the hat for the season's first drawing for free CRA tickets.

Drawing will be held that afternoon. Winners will each receive two tickets to one of the Padres home games played at Westgate Park the last week in May and first week in June.

Entries are being taken at Convair employee services. They may be dropped in the Baseball Drawing box on the counter or sent by in-plant mail to Baseball Drawing, zone 3-20.

CRA 'Slow Pitch' Loop Forming

Managers of teams intending to enter CRA's "slow pitch" softball plant tourney will meet this Friday (May 8) at 5 p.m. at the snack bar area on the main cafeteria roof by Bldg. 19.

Pete Beyrer of CRA asks that all rosters be turned in at that time so that a schedule may be drawn up. Questions about "slow pitch" play will be answered.

League play will probably start the first part of June with games on Tuesdays and Thursdays at Central Playground, 41st and University Sts. The field will be available to Convair and GD/E teams for practice after May 19. Beyrer may be contacted for assignment of practice times during the three weeks before start of the shop tournament.

CRA Pistol Shots Retain Standings

All four members of CRA Pistol Club's team kept their places for another quarter by virtue of scores compiled over the first three months of the year.

Still representing the CRA group in outside competition are Commissioner Joe Williamson, Jim Halfacre, Vern Mardis, Warren Walker.

In the April 12 matches, Williamson barely held his own to stand first in the .22-cal. Police Course master class and .22-cal. Short National. His 291 in the Police Course event was just a point ahead of Halfacre's second-place 290. Mardis was third with 284.

In the expert class Dale Young was first with 280. Walker shot a 275 for second, and Ralph Picard was in third with 260.

Williamson's Xs put him in first in the Short National when he, Mardis, and Picard tied at 282. Halfacre had a 278.

Rockhounds to See Copper Site Slides

CRA Rockhounds and guests will see a colored slide program of an old copper site in Mexico at next Thursday's (May 14) meeting, reported Commissioner Dan Whorton.

Herman Derksen will show and narrate slides taken of Copper Canyon, deep in Mexican mountains, now a tourist attraction.

Meeting will be at 7:30 p.m. at Gillespie Field Clubhouse.

Several Convair Rockhounds traveled to Wiley Well over the weekend of April 25-26 to search for agate, fire agate, and jasper.

County Fair Tickets On Sale at 75¢

Tickets to this summer's San Diego County Fair went on sale, at reduced rate, at Convair and GD/Electronics employee services this week.

The tickets are 75 cents each. Regular price for fair admission is $1. Fair dates this year are June 26 through July 5.

Advance sale of tickets is sponsored by Ninth District Parent Teachers Association as a benefit for the San Diego Children's Dental Health Center.

Skiers Set For 'Trip of Season'

Convair's Snow Ski Club and guests will join Don Diego Ski Club for the trip of the season when they board buses this Friday for a full weekend at Mammoth Mountain.

Convair and GD/E people have until tomorrow noon (May 7) to make reservations by calling CRA Commissioner Joe Harris, home phone 284-0278.

Rate of $34 per person includes de luxe bus transportation, two breakfasts, one dinner, and two nights lodging at Mammoth Mountain Inn.

Buses leave Astro parking lot at 5:30 p.m. Friday evening, arriving at Mammoth around 1:30 a.m. Return is Sunday evening.

Convair's annual fun race, open to all novice skiers in San Diego and Imperial counties, will highlight Saturday afternoon activities. Swimming in Hot Creek will warm up the skiers.

Convair Ski Club races will start at 10:30 a.m. Sunday morning. Members only will vie for six trophies in the club race. All San Diego ski clubs may enter the open race and the club champion race.

Trophies will be presented at the annual dinner-dance June 3 at Torrey Pines Inn.

Commissioner Harris urges all Convair and GD/E people to join the trip and bring their non-skiing friends as a special treat to enjoy the fresh air, bright sunshine, and good company in the High Sierra Mountains.

GD/E Volleyballers In Second Place

GD/Electronics' entry in Industrial Recreation volleyball play stood in second spot at end of National League's first round last week.

GD/E's record was 3 to 1, a game behind leading GASCO. CSEA had a 2-2 standing for third. NEL trailed with 0-4.

City Engineers led the American League after four weeks of play. Wreckers were second with 3 wins, 1 loss. Convair Hi-Lows were in third with only 1 win, 3 losses. Miramar was in the cellar, 0-4.

National League games tonight (May 6) match NEL with CSEA; Fire Dept. vs. GASCO. GD/E draws a bye. May 13 games will see GD/E playing CSEA and NEL meeting GASCO.

In American League play tonight Hi-Lows meet Miramar at 8 p.m. in Muni Gym. Next Tuesday (May 12) Convair boys will play City Engineers and the following week (May 19) will meet Wreckers. Both games are at 7 p.m.

Purdy's Team Earns Title

Bob Purdy's Team 4 won over the four other kegling teams in Convair Fire Department's winter league battle, ending the 25 weeks with 45 wins.

Team 5, captained by Hugh Rae, was second with 42½. In third spot was Team 2, Ralph Halstead, captain; fourth, Team 1, Pete Houtkooper, captain; fifth, Team 3, Leo Slosser, captain.

Individual trophies, provided by the blaze boys, went to members of the winning team: Purdy, James Johnston, Paul Gute.

Trophies also were handed to high scorers for the bowling season—Rae, high men's game, 260; Slosser, high men's series, 639; Purdy, high handicap game, 279; Charles Hamel, high handicap series, 717; Johnston, most improved bowler, adding 16 points to his average. Team 4 had high team game of 627; Team 2, high team series, 1,669.

Eight two-man teams swung into summer league play on April 22 at Frontier Lanes.

Sports & Recreation

CRA Calendar

(Convair Recreation Association has some 30 activities in operation for Convair and Electronics people. For information call CRA headquarters, ext. 1245.)

★ ★ ★

AEROMODELERS — Flying sessions Saturday and Sunday mornings, 8 a.m. to 1 p.m., Clairemont Mesa Flying Site.

BOWLING — Annual CRA plant championship tournament, May 9-10, 16-17, Pacific Recreation alleys.

CAMERA CLUB — Second quarterly contest May 17, 7:30 p.m., Photo Arts Bldg., Balboa Park.

COIN CLUB — Meeting May 21, 7:30 p.m., Convair cafeteria, Pacific Hwy.

FENCING — Workouts and instruction each Friday night, 7-10 p.m., YWCA, 10th & C Sts.

FISHING CLUB—Meeting May 19, Gillespie Field Clubhouse. Potluck dinner, 6:30 p.m., business session, 7:30 p.m.

GARDEN CLUB — CRA-ARA meeting tonight (May 6), 7:30 p.m., Floral Association Bldg., Balboa Park. Slide program of dahlias.

GLIDER CLUB — Meeting second Saturday of month, 8 p.m., Golden Hill Playground Recreation Hall, 28th & A Sts.

GOLF — IRC tourney final rounds May 9-10.

GUN CLUB — Registered ATA trapshoot May 17, Gillespie Field Range. Practice traps open at 8:30 a.m., competition at 10 a.m.

ICE SKATING — Thursday ice skating sessions, Mission Valley Ice Plaza, 6:30-8 p.m.

MODEL RAILROAD — Work nights, Fridays, 7:30 p.m.; open sessions, Sundays, 1-4:30 p.m., House of Charm, Balboa Park.

MOVIES — Reduced prices for General Dynamics people at State Theater, Euclid and El Cajon Blvd. General admission: adults, 75¢ children, 25¢.

PISTOL CLUB — CRA club shoot May 10, 9:15 a.m., San Diego Police Pistol Range, Federal Blvd. and Home Ave.

RADIO CLUB — Next meeting May 14, 8 p.m., Harbor Drive club headquarters.

RIDING CLUB — Meeting tomorrow (May 7), 7:30 p.m., Gillespie Field Clubhouse.

ROAD RUNNERS — Meeting May 21, 7:30 p.m., Gillespie Field Clubhouse.

ROCKHOUNDS—Slide show at May 14 meeting, 7:30 p.m., Gillespie Field Clubhouse.

ROLLER SKATING — Free tickets at Convair and GD/E employee services for May 18 skate night, Skateland, Front and G. Sts.

SNOW SKI CLUB — Annual spring ski trip to Mammoth Mountain May 9-10. Reservations close tomorrow noon (May 7). Call Joe Harris, 284-0278.

SOFTBALL — "Slow pitch" managers meeting May 8, 5 p.m., Convair cafeteria snack bar.

SPORTS CAR CLUB — Meeting tonight (May 6), 7:30 p.m., Convair cafeteria.

STAMP CLUB — Meeting May 7, 7:30 p.m., Convair executive dining room.

SWIMMING — Family swim night May 16, 7-9 p.m., Mission Beach Plunge. Free tickets at Convair and GD/E employee services.

WATER SKI CLUB — Skiing weekends on Mission Bay. Call Gene Sevigny, ext. 2701, Plant 1.

68 Is Low Net At Bonita CC

George Kurei (Dept. 401) topped the CRA monthly golf tournament April 18-19 with low net score of 68. Tourney was held at Bonita Country Club course.

Second low net in 0-15 flight was M. Hill of Dept. 400 with a 71. First low gross was held by Jerry Swarts (Dept. 48), who stroked an 81. Don Lattimore's 82 was good for second low gross. Lattimore is in Dept. 6.

In the 16-24 flight C. Reese (Dept. 6) had a 70 for low net. Tobe Hundley (Dept. 400) was second low net with 72. F. Kany (Dept. 400) was first low gross winner with 88. G. Watson, also Dept. 400, had second low gross, 90.

In the 25-and-over flight, H. Skilton (Dept. 6) was first low net scorer with 69. John Wood of Dept. 14 was two points behind with a 71 for second low net. A. Van Horne (Dept. 400) had a 90 for first low gross. Bob Connell, also Dept. 400, was second low gross with 96.

CANCER SOCIETY TO GET $3,000

American Cancer Society was voted $3,000 as annual contribution to the organization's drive, conducted in April, at last week's meeting of GD/Convair Employees' Con-Trib-Club Committee.

Mattie Ross Wows Parade

Mattie Ross of GD/Convair was "Miss San Diego" of some 70 years ago as she paraded in a recent 1890 Bathing Beauty contest, all togged out in her own version of grandmother's bikini.

Mrs. Ross, who is responsible for Convair's telephone operations, was a San Diego delegate at the PBX Clubs of California fifth annual convention over the weekend of April 24-26 in Anaheim, Calif. As such, she was entered in the convention's "bathing beauty" show.

She designed and made her own red and white striped costume, complete with bathing cap, and complemented with a large basket of artificial flowers and fruits. As an added touch, she carried her own toy poodle. Sixteen contestants from 13 California cities baffled judges.

Mary Jerram was the only other Convair person attending the two-day convention.

MISS 1890 — Convair's Mattie Ross in her original costume designed and made for recent 1890 Bathing Beauty contest held in connection with PBX convention. Mrs. Ross was San Diego delegate.

BRIEFING ON MAULER — Lt. Gen. Frederic J. Brown, commanding general Sixth Army, Presidio of San Francisco, and C. F. Horne, president of General Dynamics/Pomona, study model of Army's Mauler missile system being developed by GD/Pomona. General Brown was recent visitor at Pomona facility.

Satellite 'Blistered,' 'Chilled' in Astro Lab

A satellite moving in an earth orbit is subjected simultaneously to the blistering glare of unfiltered sunlight, and the dark chill of space.

At the same time — to compound these temperature problems further — the satellite's instruments require approximately "room temperature" to function normally.

At GD/Astronautics, a key tool in meeting the challenges posed by this sort of "thermal sandwich" is the space simulation facility of the division's aerophysics lab.

Here test specimens — complete satellites, components, space vehicle subsystems — can be studied with laboratory thoroughness while they are being subjected to accurate thermal simulation of conditions in space.

The space simulator is the northernmost of two 35-ton vacuum chambers set end to end under a sheltering roof on the east side of Bldg. 28 at the main plant, San Diego.

The area is open on three sides (although two sides have curtains for weather protection), providing ventilation for safety during tests involving such substances as liquid hydrogen.

The simulator itself is a cylindrical chamber 19 feet long, with a 12-foot inside diameter, and equipped to duplicate space conditions for thermal and vacuum testing by providing vacuum, extreme cold, and almost perfectly simulated solar radiation.

The cold of space is reproduced by a liquid nitrogen cold wall (temperatures of about -300° F.), painted with a flat black absorptivity coating, which lines the chamber interior.

Three mercury diffusion pumps, backed up in series by a like number of mechanical pumps, empty the air from the simulator to duplicate pressures at altitudes of about 80 miles.

For nearly perfect simulation of the solar spectrum, the facility is equipped with a trio of powerful carbon arc lights which beam into the chamber through quartz windows to focus on the test subject. In the near future, a controlled and programmed tungsten-quartz lamp system will be installed to add simulation of reflected planetary light and thermal radiation.

Within this hostile environment hangs the test specimen, suspended from a fixture which can be rotated by remote control. Thermocouples and other detection devices feed information from the specimen to a 200-channel guarded data acquisition unit located outside the chamber on an adjacent instrumentation and control deck.

(Here, too, is located equipment which air conditions the simulator when it is not in use, protecting electronic systems and thermal surfaces from dust and moisture, and permitting more rapid "pump-down" of the chamber when a test is set up.)

The acquisition unit records information from the test subject as printed data for "quick look" purposes while a test is in progress, or in punched tape form as an input for GD/Astro's IBM 7094 computer.

Thirty land lines link the facility with GD/Astro's analog and digital computer labs for system control and additional data handling capability.

The facility is operated as part of the propulsion department under Chief Engineer F. A. Stephenson, and specifically by personnel of the thermodynamics group (Dept. 528-1) reporting to R. E. Tatro, acting chief. Lead engineer for most space simulation testing is John Griffith, design specialist.

ANTWERP MEETING HEARS ASTRO MAN

GD/Astronautics' Conrad M. Boekamp of reliability control's process control labs addressed the third international symposium on radio and gammagraphy in nuclear and high pressure vessels, March 18 in Antwerp, Belgium. He described quality assurance and reliability procedures in U. S. aerospace programs for 200 scientists from 10 nations.

Eleven General Dynamics Scholarships Awarded

(Continued from Page 2)

son, son of Mr. and Mrs. Leslie C. Erikson.

Electronics-SD—Paul Raymond Cary, son of Mr. and Mrs. Raymond J. Cary Jr.

Fort Worth—Lesley M. Wilson, daughter of Mr. and Mrs. Leo E. Wilson.

General Atomic—Charles W. Loomis, son of Dr. and Mrs. Charles C. Loomis; Bruce Stewart, son of Dr. and Mrs. Hugh B. Stewart.

Pomona—Lawrence J. Johnson, son of Mr. and Mrs. Roger L. Johnson; Christine Tubbs, daughter of Mr. and Mrs. Douglas C. Tubbs.

Thomas Crouch is a senior at Clairemont High School, San Diego. He is a life member of the California Scholarship Federation, member of the school's Math Club and team, and winner of Math Departmental Honors Awards in his freshman and sophomore years. He plans to major in mathematics at Harvey Mudd College.

Dean Sandin will graduate from Herbert Hoover High School this semester. He holds a life membership in CSF and has been a member of the high school math team in his junior and senior years. He devotes outside time to publishing and editing the Science Fiction Review. Dean intends to major in physics at the University of California at San Diego.

Robert Franson also will be graduating from Hoover High School this spring. He has teamed with Dean Sandin to publish the Science Fiction Review and was co-organizer and president of the school's Math Club. For four years he has been a junior scientist at the San Diego Museum of Natural History. He will enter the U. of California at San Diego for a physics major.

Bryan Cheney, presently in Germany with the American Field Service, is enrolled at Grossmont High School. Last year he served as president of the school chapters of CSF and the National Forensic League. He received the school's Outstanding Debate Team Award in 1962 and 1963 and attended the State Finals in Debate in 1962. He will major in architecture at Harvard College.

David Erikson is a senior at Robert E. Fitch Senior High School, Groton, Conn. Currently he holds offices of president of the school's German Club, co-captain of the debating team, vice president of the school's United Nations Club, member of senior class executive board, Student Council, Key Club executive board, and is on the school newspaper staff. David plans to major in liberal arts at Columbia College, heading toward teacher's credentials.

Paul R. Cary is a senior at Helix High School and member of the CSF. He took part in the Grossmont Union High School District Summer in Science program, Greater San Diego Mathematics Field Day, and at present is deep in work on his own individual ecological study of a local species of snake. He will major in zoology at Stanford University.

Lesley Wilson is attending R. L. Paschal High School, Fort Worth, where she has been named outstanding graduating science student. She is member and current secretary of National Honor Society. In 1961 she won first place, features, at the Interscholastic League Press Conference. She was Scholastic Art Awards Gold Key winner the same year and won a letter and pin for skill in mathematics in 1963. She will enroll at Reed College, Portland, Ore., this fall.

Charles Loomis is completing his high school course at La Jolla Country Day School. Last year he won the Board of Trustees Award for Scholarship, the upper school Math and Science Awards. This year he has co-captained the varsity wrestling team. Charles intends to major in mathematics at Stanford U.

Bruce Stewart is a senior at San Dieguito Union High School, Encinitas, Calif. He has been a member of CSF during his four high school years and is a CSF Sealbearer. This spring he took first place in the team test at the San Diego Math Field Day. He won a first place in chemistry division at last year's San Diego Science Fair and another first in the American Chemical Society High School exam, SD County Chapter. During the summer of 1962 he attended Le College Cevenol, France. He will major in mathematics, also at Stanford.

Lawrence Johnson will graduate this spring from Webb School of Calif., Claremont, Calif. He is editor of the school literary magazine, business manager of the school newspaper, and has served as president of the school debate group. He also is a life member of the California Scholarship Federation. Lawrence has won two varsity letters for his track prowess. He plans to major in premedicine at Northwestern University.

Christine Tubbs is a student at Fullerton Union High School, Calif. She has been editor of the school newspaper and member of the executive board the last two years. This year she was a first-place winner in editorial writing at the Journalism Education Association Competitive Writing Tournament. She is a life member of California Scholarship Federation, besides taking an active part in the school's service clubs. She will enter Pitzer College this fall to begin work toward a psychology degree.

"People Mobility"

Transfers Among GD Divisions Continue at Steady Pace

Transfers of qualified personnel from one General Dynamics division to another to meet special requirements or fill vacancies continue at a steady rate.

During 1963 nearly 900 separate transfers were effected, in line with Corporate policy to take maximum advantage of skills and capabilities and to broaden experiences. All Dynamics divisions were involved in the interchange.

Recent personnel shifts include:

R. K. Gottschall, with General Dynamics since 1954, from Convair division to Corporate Office as director of advertising; **Fred Jensen** (1956) from Convair to Astronautics' division systems; **Vince F. Cernuto** (1934) from Convair to Astro material operations scheduling; **Joseph Gnas** (1955) from Convair to Astro Centaur engineering; **E. H. Damarus** (1940) from Convair to Astro chief of applied manufacturing research and process development.

Robert A. Westerwick (1952) from Astro to Convair engineering.

Thomas R. Sparks (1962) from Astro to General Atomic; **Clifton D. Hollis** (1947) from Astro to GD/Fort Worth support equipment projects; **Frank Yost** (1960) from Astro to General Atomic; **R. E. Sutherland** (1956) from Astro to Electric Boat as head of personnel administration; **Charles W. Dickinson** (1963) from Astro to Pomona engineering.

L. F. Boring (1940) from Convair to Pomona electronic assembly and test; **R. J. Zusag** (1958) from Convair to Pomona engineering; **Eric Milnor** from Astro to Pomona engineering; **C. F. Clark** from Astro to Pomona electronic assembly and test; **C. W. Dickinson** from Astro to Pomona engineering; **S. P. Scesney** from Astro to Pomona engineering; **H. M. Nance** from Astro to Pomona electronic assembly and test.

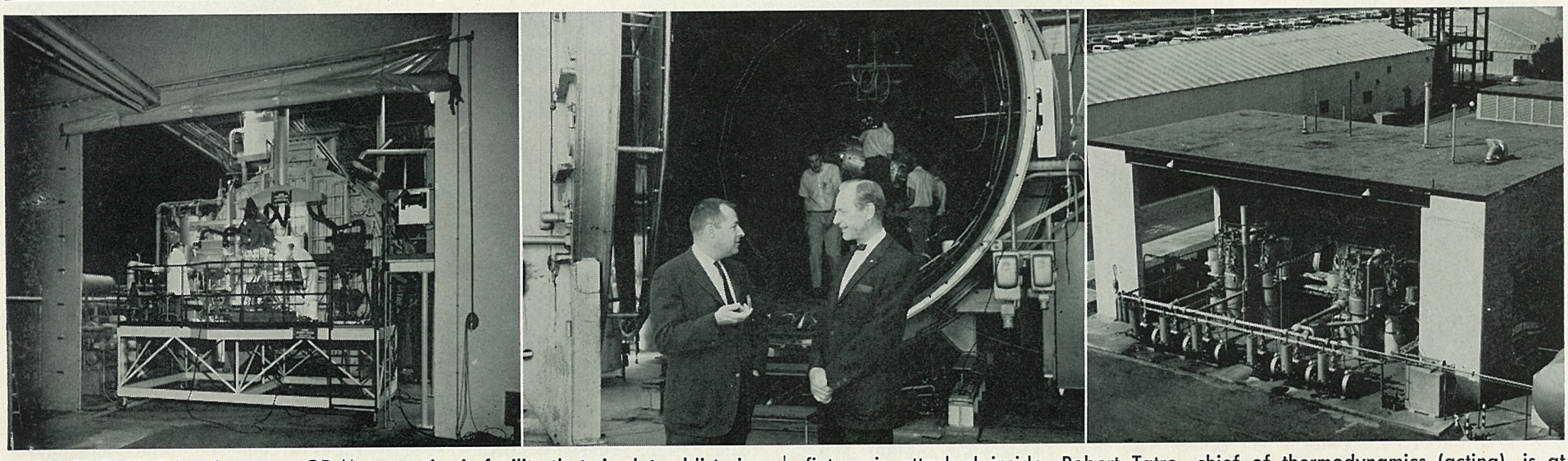
Eddie C. Dorris (1956) from Astro to Fort Worth.

L. R. Janicki from GD/Electronics-San Diego to Pomona engineering; **R. L. Hurst** from GD/E-SD to Pomona electronic assembly and test; **Glenn Woods** from GD/E-SD to Pomona administrative systems analysis.

J. E. Dodge (1953) from Convair to Fort Worth maintenance engineering; **E. L. Williams** (1946) from Convair to Fort Worth factory management; **Lee House** (1947) from Convair to Fort Worth electrical; **Carl F. Uhl** (1936) from Convair to Fort Worth wing assembly; **T. L. Baker** (1964) from Convair to Fort Worth tool room & fixtures; **G. H. Rothwell** (1962) from GD/E-SD to Fort Worth avionics systems.

J. T. Bony (1955) from GD/E-Rochester to Stromberg-Carlson wage and salary; **A. J. Zambito** (1957) from S-C to GD/E-Rochester.

Sam Rowland, formerly Convair, to General Atomic safety.



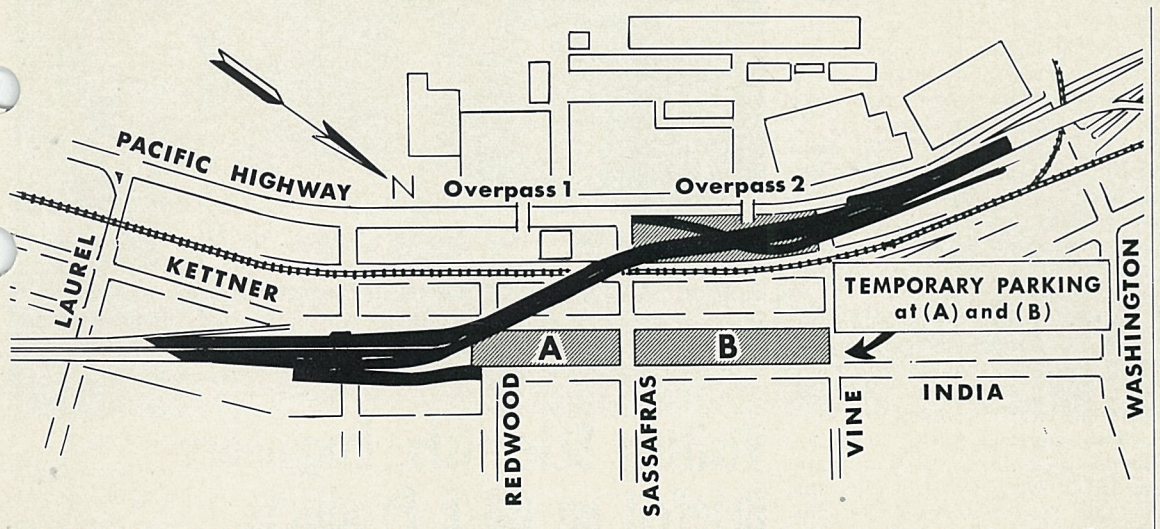
SPACE FACILITY — In use at GD/Astronautics is facility that simulates blistering heat as well as chill of outer space. In center, heavy door of chamber is open as fixture is attached inside. Robert Tatro, chief of thermodynamics (acting), is at left, discussing test with Eric Lindkvist, manager of scientific satellites.

GD

SAN DIEGO EDITION
(Serving GD/CONVAIR
and GD/ELECTRONICS)

GENERAL DYNAMICS NEWS

Vol. 17, No. 11 | PUBLISHED BY GENERAL DYNAMICS CORPORATION | Wednesday, May 20, 1964



PARKING CHANGE — Completion of temporary parking lots for General Dynamics people at Plant 1 is scheduled by first of June. Lots will accommodate cars now parking on employee lots on east side of Pacific Highway which will be absorbed into new freeway. Parking will be available between Kettner and India Sts. from Vine on the north to Sassafras. If additional space is needed, second lot will run from Sassafras to south of Redwood.

S-C 3070 Marked For Key Role in Space Facility

S-C 3070 Electronic Printers, developed by General Dynamics/Electronics-San Diego, are a vital part of the Space Flight Operations Facility dedicated last week (May 14).

The facility, operated by the California Institute of Technology's Jet Propulsion Laboratory in Pasadena, Calif., is one of the most modern computer centers in the world. It can control two simultaneous unmanned spacecraft missions to interplanetary space and to the moon and planets. A third mission can be monitored at the same time.

Eight of the GD/E high-speed electronic printers, which use electron beams to translate coded information from digital computers, were chosen for the facility because of their high reliability and noiseless operation.

Instead of a hammer or other impact printing device, the S-C 3070 uses a special cathode ray tube and an electrostatic printing process to produce characters, numbers, and symbols at speeds up to 5,000 words per minute. Use of this technique makes the General Dynamics printers virtually noiseless, resulting in more efficient working conditions for engineers and scientists who are working in the new laboratory.

The printers, operating with IBM 7090 and 7094 computers in the new facility, will serve JPL's unmanned planetary, interplane-

(Continued on Page 2)

GD/E BOND BUYING REACHES 73½ PCT. CONVAIR NEARS 70

GD/Electronics-San Diego pushed its participation in payroll purchase of U.S. Savings Bonds to a healthy percentage of 73.5 of total population as a result of this month's campaign.

This was a 20 per cent increase over participation at start of the drive. A total of 150 new subscribers joined the payroll deduction plan and 60 already buying bonds, increased their deductions.

* * *

GD/Convair expected to hit the 70 per cent mark in its annual U.S. Savings Bond campaign when final results are tallied.

Incomplete returns last week showed that new sign-ups had boosted the division's participation to 67.4 per cent, with a number of departments still to report. At that time 204 new buyers had increased total number of purchasers to 2,052.

Convair Mgt. Club Will Stage Picnic

Plans are in the making for GD/Convair Management Club's annual family picnic.

Members are asked to circle Saturday, June 20, as the date to save. Site chosen for this year's gathering is Pine Crest, CRA mountain recreation area near Julian.

Depts. 100-171 are sponsoring. Gerry Cox is in charge of arrangements.

GD/E Mgt. Club Plans Ballot

A new slate of officers for the General Dynamics / Electronics - San Diego Management Club will be presented to the membership at next week's (May 28) meeting, announced D. A. Graybill, club president.

Max Leeds, nominating committee chairman, will read the committee's choice of nominees to fill club posts for the 1964-65 term. Members will ballot by in-plant mail and results will be announced at the June meeting.

Serving with Leeds are M. M. Reeder, C. R. McGehee, G. E. McClung, R. L. Brouillard.

"Adventures in Sound," Bell Telephone Co. demonstration tracing the development of sound transmission from the first wireless to modern-day stereophonic equipment, will fill out the evening's program, said T. E. Morris, program chairman.

Meeting location is at the OceanHouse on Pacific Hwy. Social hour is 5:30 p.m. and dinner at 7. Tickets at $3.50 each now are on sale.

At last month's meeting 150 GD/E club members heard Sid Gillman talk about the San Diego Chargers pro football team.

Jack A. Croft, Astro chief of educational services, represented the Astronautics Management Club as he presented the GD/E club an American flag. Ralph A. Shaeffer, GD/Pomona assistant controller, accounting, gave the Management Club banner on behalf of the Pomona Management Club.

Teams Report Value Findings

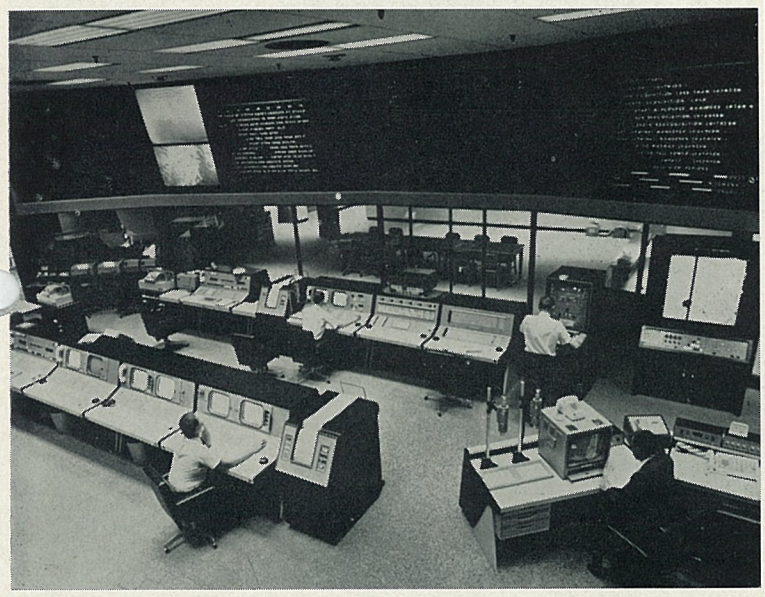
Two teams of six men each arrived at new methods and concepts which could result in considerable savings for new business contracts in GD/Convair's recently-concluded value control seminar No. 20.

Value improvement on hardware which likely would mean redesign is now under evaluation by the division's engineering department, H. P. Williams, GD/Convair value control manager, said.

Reports of the teams were given April 30 at conclusion of the full workshop seminar which began April 13.

Following the last seminar the percentage of key personnel trained in full seminars at GD/Convair is impressive, said Williams. One hundred per cent of all tool designers with an A and

(Continued on Page 2)



CENTER DEDICATED — GD/Electronics - SD electronic printers, S-C 3070s, are important part of NASA's new Space Flight Operations Facility at Caltech JPL in Pasadena, Calif. Two S-C 3070s are visible in Mission Control area shown, one at right end of consoles in foreground, another between consoles in second row.

Little Joe II Shot Excellent

"A most excellent shot," was what J. B. Hurt, GD/Convair's Little Joe II program manager, termed last week's firing at White Sands Missile Range, N. M., when Little Joe II boosted a dummy Apollo spacecraft to 17,000 feet above the desert for the first in-flight test of its launch escape system.

"The countdown was practically perfect," said Hurt after the May 13 launch.

"We at Convair not only are highly pleased with Little Joe II, but are gratified that both

Convair President J. H. Famme, immediately after receiving reports of the 6 a.m. launch, told the division: "Congratulations to all of you who worked on this project and thanks for a good job!"

North American and NASA officials appeared well satisfied with vehicle performance," he continued.

Robert O. Piland, assistant Apollo program manager for NASA, indicated that the entire test was successful, meeting all objective requirements — takeoff was normal, flight was normal, and thrust termination occurred 29.17 seconds after takeoff. The shot took not more than 7 minutes.

The firing was the first of five to test the emergency escape system, which some day may save lives of astronauts blasting off on flights to the moon.

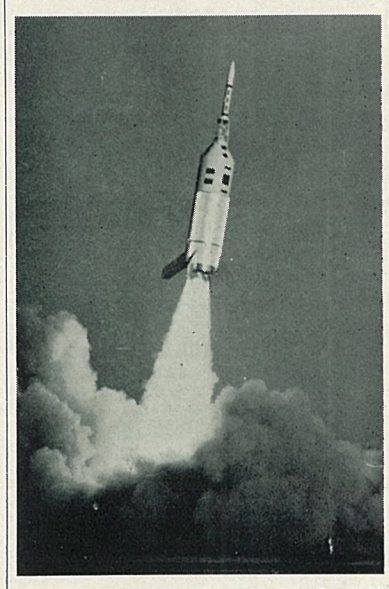
Little Joe II made its first flight last Aug. 28, successfully demonstrating overall capability. The powerful solid-propellant booster, built at GD/Convair, is designed specifically for suborbital testing of unmanned Apollo spacecraft.

At the White Sands launch site, besides Hurt, to direct Convair's part of the operation was H. K. Cheney, deputy program manager responsible for launch operations.

Pushing the final buttons to launch Little Joe II were G. H. Solheid, who initiated the timer supplying ignition current to the motors, and J. E. Lampman, in charge of thrust termination system controls.

D. G. Moody represented Convair as project engineer; R. K. Jepperson assisted as technical adviser at launch controls. Also in the blockhouse were J. J. Murphy and R. E. Malm, technical assistants.

Convair's contingent of engineers on the spot was headed by A. W. Kellogg. Owen Todd supervised mechanics on the job and Earl Covington was in charge of inspection.

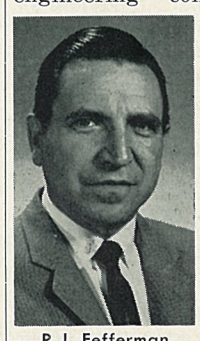


ON ITS WAY — Little Joe II launch vehicle thunders into bright New Mexico sky after early morning launch May 13 at White Sands Missile Range. Within seconds it was deliberately exploded.

R. L. Fefferman Gets New Post

R. L. Fefferman has been named director of engineering administration at GD/Convair in a realignment of organizational functions effective the first of this month, Charles W. Frick, vice president-engineering announced.

Fefferman will be responsible for overall manpower control, engineering contract performance, and the relationship between engineering and other Convair departments as required to effect efficient conduct of business, explained Frick.



R. L. Fefferman

Reporting to Fefferman are: G. L. Peyton, now manager of the engineering administration; W. T. MacCarthy, manager of the research

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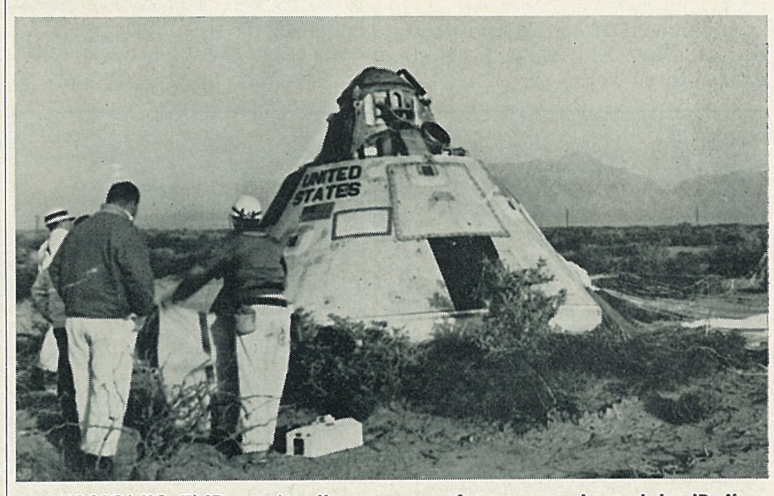


MISSION'S END — Apollo spacecraft command module (Boilerplate 12), built by North American Aviation, rests on desert following 6 a.m. launch atop Little Joe II launch vehicle. Successful mission demonstrated operational characteristics of escape system during abort at high dynamic pressure.

120 YEARS — Over a century of service is represented by these GD/Convair men who this month received their 30-year emblems from President J. H. Famme. From left, M. J. Hayman, Dept. 25-1, Leo Budzynski, Dept. 101, Famme, L. O. Cederwall, Dept. 6-21, and Paul DiGiulio, Dept. 131.

Log Book Entries

Service Emblems

CONVAIR

Service emblems due during the period May 16 through May 31.

Thirty-year: Dept. 6-21, L. O. Cederwall; Dept. 25-1, M. J. Hayman; Dept. 101, Leo Budzynski.

Twenty-year: Dept. 6-31, LaVon O. Rainer; Dept. 27-6, O. G. Downs.

Fifteen-year: Dept. 6, C. L. Glasson, P. B. Lyons; Dept. 11-0, Bernice H. Dickey; Dept. 16-1, C. S. Booraem; Dept. 401-4, J. L. Vidovich.

Ten-year: Dept. 102, T. A. Roach.

HOLLOMAN AFB

Ten-year: Dept. 313-0, A. J. Moore Jr.

ELECTRONICS

Twenty-year: Dept. 35-00, C. E. Klein.

Fifteen-year: Dept. 22-00, Melva J. Porterfield; Dept. 30-00, J. W. Barrett.

Ten-year: Dept. 34-00, Lucienne A. Forcier; Dept. 35-00, C. E. Hisaw.

Awards

CONVAIR

Employee Suggestion Awards approved for periods ending May 1 and May 8.

Dept. 6, B. J. Traver, $78.

Dept. 101, C. V. Beeson, two awards, $46.40 and $10.40; S. Boyd and B. T. Robinson, joint award, $5 each; G. W. Oliver and J. H. Hammer, joint award, $25 each; L. V. Malody and J. Comba, joint award, $19 each.

Dept. 102, F. M. Baxter, three awards, $24.10, $235 and $49.30; H. B. Bender, $20; J. Butera, $100.

Dept. 131, G. K. Phares, $10.

Dept. 141, J. Bogen, two awards, $10 and $14.70.

Cost Improvement Proposals approved for the same periods.

Dept. 91, G. D. Young.

Dept. 93, E. R. Hoag.

Dept. 115, S. Penzuil, two proposals.

Papers Presented

CONVAIR

HOWLAND—J. A. Jr., Dept. 6-5. "Volumes, Surface Areas, and Centroids of Prismoidal and Revolved Surfaces," 1964 National Conference of Society of Aeronautical Weight Engineers, Dallas, Texas, May 19.

KUCHTA — Bernard J., Dept. 6-5. "Improved Servo System Performance through "Component Refinement and Selection," ASME Chicago Design Conference, May 14.

SMITH—Clarence R., Dept. 6-5. "Designing Fatigue Resistant Structures," San Diego Section, Instrument Society of America, May 21.

ELECTRONICS—SAN DIEGO

TAMURA—Yoshiaki, chief of theoretical design. "Electronics in Japan Today," IEEE, Cedar Rapids Section, Iowa, May 20.

Retirements

CONVAIR

ANDERSON—Edward J., Dept. 25-5. Seniority date Nov. 22, 1950, retired April 30.

BLEDSOE—Herbert E., Dept. 201. Seniority date March 26, 1951, retired April 4.

CLASON—Harold L., Dept. 115. Seniority date June 10, 1949, retired April 30.

DANCY—William W., Dept. 401-5. Seniority date Sept. 25, 1950, retired May 4.

DI GIOVANNA—Allesandro, Dept. 15. Seniority date March 29, 1956, retired April 2.

LEVEY—Clarence C., Dept. 401-7. Seniority date Jan. 10, 1947, retired April 30.

MATTHEWS—James D., Dept. 25-1. Seniority date April 2, 1951, retired April 30.

QUELCH—Theodore H., Dept. 133. Seniority date June 24, 1947, retired April 17.

STORY—Gladys P., Dept. 101. Seniority date June 16, 1947, retired April 30.

Rider-Driver

CONVAIR

RIDE WANTED—Need ride to work (one way only) 7:30 a.m. from 7400 block of El Cajon Blvd. to Plant 1. Marie Davidson, Dept. 6-2, ext. 686, or home phone 466-7341.

Personals

CONVAIR

We wish to express our sincere gratitude for the kind expressions of sympathy, and the thoughtfulness and generosity of General Dynamics employees in memory of our husband and father, Walt Dold.

Bess Dold and the children.

R. L. FEFFERMAN ASSUMES NEW POST

(Continued from Page 1)

laboratories; H. R. Kennedy, manager of publications; and N. J. Rutherford, manager of art and editorial.

Rutherford replaces P. J. Fitzgerald who has left the company to establish his own agency.

New department designations assigned functions reporting to Kennedy are: publications, Dept. 6-05; graphic reproduction under H. B. Day, supervisor, Dept. 6-06; photographic section under Dan Otto, supervisor, Dept. 6-07.

Art and editorial's designation is Dept. 6-02.

K. G. Hart has assumed Fefferman's former responsibilities as chief of dynamics and G. G. Green is appointed manager—aerospace technology, taking over Fefferman's duties in that area.

Fefferman, a native of Minnesota, joined Convair in 1943 as a stress analyst in development engineering. He was research engineer, design specialist, dynamics group engineer before his promotion to chief of dynamics in early 1962.

* * *

John Doig, manager of GD/Convair service parts, now reports directly to D. H. Digges, director of contracts, in other reassignments of functions.

Convair Son First In Forensic Finals

Dave Reid, 17, son of Max Reid, GD/Convair Dept. 401, finished first in the men's extemporaneous division of the National Forensic League State Finals at Santa Barbara, Calif., April 24-25.

He will go on to compete in the NFL finals next month at Akron, Ohio.

A junior at Mount Miguel High School, Dave has made the State Finals three years.

General Dynamics NEWS

Published by General Dynamics Corporation, One Rockefeller Plaza, New York 20, N. Y.; with editorial headquarters at 3302 Pacific Highway, San Diego 12, Calif., P.O. Box 1950, telephone 296-6611, ext. 1071. Logan Jenkins, editor-in-chief.

Astronautics Editorial Offices, Bldg. 8, GD/Astronautics, Mail Zone 130-01, P.O. Box 1128, San Diego 12, Calif. Telephone 277-8900, ext. 3322. Staff: Bryan Weickersheimmer, editor; Willard Harwood.

Convair Editorial Offices, Bldg. 32, Plant 1, GD/Convair, Mail Zone 1-320, P.O. Box 1950, San Diego 12, Calif. Telephone 296-6611, ext. 1071. Staff: Grayce Fath, Helen Pemberton.

GD/Electronics (San Diego) news contact: Helen Wood, 298-4641, ext. 1377, Plant 1, Bldg. 51.

Fort Worth Editorial Offices, between Cols. 71-C and 71-D, Assbly. Bldg., GD/Fort Worth, Mail Zone T-63, P.O. Box 748, Fort Worth 1, Texas. Telephone PErshing 2-4811, ext. 2961. Staff: Dave Lewis, editor; Mary Beck.

Pomona Editorial Offices, Room 119, Bldg. 1, GD/Pomona, Mail Zone 3-13, P.O. Box 1011, Pomona, Calif. Telephone, NAtional 9-5111, ext. 6226-5279. Staff: Glenn Kehr, editor; Carol Colbert. Daingerfield news office, P.O. Box 947, Daingerfield, Texas. Telephone Lone Star, Texas, 2211, ext. 424.

* * *

Affiliated editions of General Dynamics NEWS are published in Rochester, N. Y., covering GD/Electronics and Stromberg-Carlson, editorial offices, 100 Carlson Road, HUbbard 2-2200, ext. 2555. Fred E. Voss, editor; and at Groton, Conn., covering GD/Electric Boat, editorial offices at Groton, HIlltop 5-4321, ext. 300 and 513, Joseph Tracey, editor.

S-C 3070 Marked For Key Role

(Continued from Page 1)

tary, and lunar probes for the National Aeronautics and Space Administration.

Each of the printers is placed in a separate area where affected groups receive the computer-generated information, thus alleviating the crowding of personnel into a single facility to monitor incoming data during space flights.

Since each input-output area is also a work area, low noise levels was an important objective.

In selecting the S-C 3070, hardware development engineers felt it operates at a speed which presents data as fast as any operator can absorb it. Also, S-C 3070 output can be copied by standard office procedures.

Another factor was cost. Because of the simplicity of interface between the S-C 3070 and the IBM equipment, the GD printers prove economical.

Two additional S-C 3070s are in use with the PDP-1 computer in JPL's Data Reduction Lab and in the Space Sciences Division. The latter machine is used to print out high speed teletype information.

Teams Report Value Findings

(Continued from Page 1)

above rating, manufacturing supervision through assistant foreman level; and all quality control engineers have been through value control training. In the engineering department, 68 per cent of senior design engineers and above have been indoctrinated in value vs. cost principles and techniques. Seventy-nine per cent of purchasing personnel classed as senior buyers or above have taken the seminar training.

"This ratio is particularly gratifying," said Williams. "We are approaching our goal of reaching every person in the division who could have a share in the design, procurement, production of any product. Only by constant training and by insistence that value control is practiced outside of seminar workshops, can we profit by value analysis."

At this time, 560 Convair key personnel have been through full workshop seminars. Special seminars have been given 110 customers and suppliers. Nearly 250 Convair people and 30 customers have had shorter indoctrination.

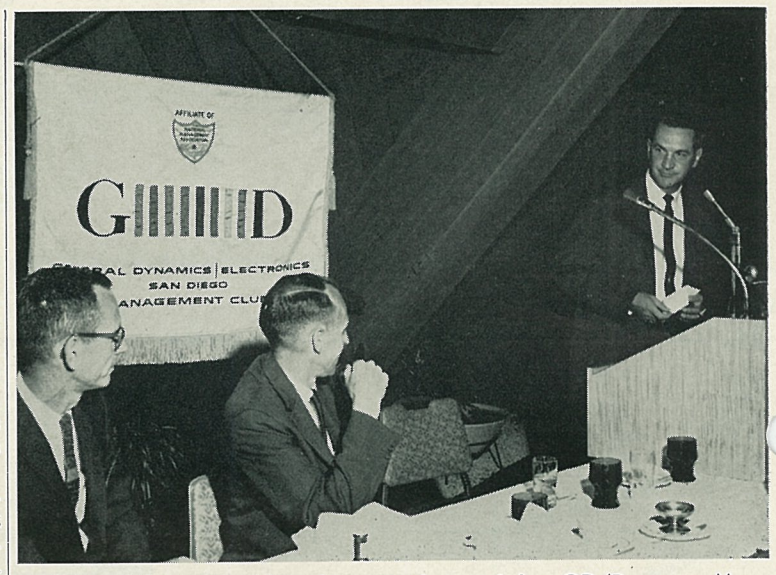
Dates of the next seminar in GD/Convair's continuing program will be announced as soon as final details are firm.

C. L. Hibert was project leader of both teams in seminar No. 20. Wayne Turner of educational services coordinated.

Team members and department numbers were:

No. 1—F. D. Schwend (Dept. 27), K. R. Tucker (Dept. 15), A. T. Anderson (Dept. 6), E. E. Keller (Dept. 6), Al Stieringer (Dept. 102), C. S. Dickerson (Dept. 6).

No. 2—Bob Gowdy (Dept. 101), Tom McMaster (Dept. 15), Walt Saylor (Dept. 15), Jack Stringfield (Dept. 6), Jack Strong (Dept. 25), George Wilson (Dept. 6).



CLUB BANNER — New banner donated by GD/Pomona Management Club forms backdrop at GD/Electronics - SD April meeting as D. A. Graybill, GD/E club president, pays tribute to Pomona's R. A. Shaeffer (not shown) and to Astro's J. A. Croft (center) for American flag given by Astro club to new sister group. At far left is R. L. Brouillard, board member of GD/E group.

Visiting Scientists, Engineers Briefed on GD/E Products

GD/Electronics-San Diego capabilities and products were presented last week to an international group of scientists and engineers representing the United States, England, and Canada.

Tripartite Sub-Group K, including 26 representatives of military and governmental agencies of the three countries, were introduced to GD/E's radar techniques during a one-day presentation, May 13.

John L. Lombardo, GD/Electronics-SD general manager, welcomed the gathering. J. W. Colvin, manager of plans and programs, coordinated arrangements.

Discussions were given on GD/E's short pulse techniques by R. R. Apgar; hand-held radar, A. R. Zagon; display techniques, R. D. Runyan; Terrain Following Radar, R. L. Olson; Aircraft Station Keeper, J. B. Gehman; periodically-elevated electronic kibitzer, S. A. Combs.

United Kingdom representatives attending were Rowland B. Clayton, Edward V. Glazier, George L. Hutchinson from Royal Radar Establishment, Ministry of Aviation, Malvern, England; Ralph Benjamin, Admiralty Service, Weapons Establishment, Portsdown, Cosham, England; Edward Forster and Frederick A. Holmes, Defence Research Staff, British Embassy, Washington, D. C.

From Canada were Dr. R. C. Langille, scientific officer, Directorate of Physical Research, Defence Research Board of Canada, Ottawa; Lt. Col. John A. Stairs, technical staff officer, Army Equipment Engineering Establishment, Army Hdqtrs., Ottawa; Charles K. Allan, Directorate of Gen. Fighting Equip., Navy Hdqtrs., Ottawa; Wing Cdr. Donald A. Bell, Special Studies Group, RCAF Hdqtrs., Ottawa; Vernon Smith, scientific officer, Office of the Defence Research Member, Canadian Joint Staff, Washington, D. C.

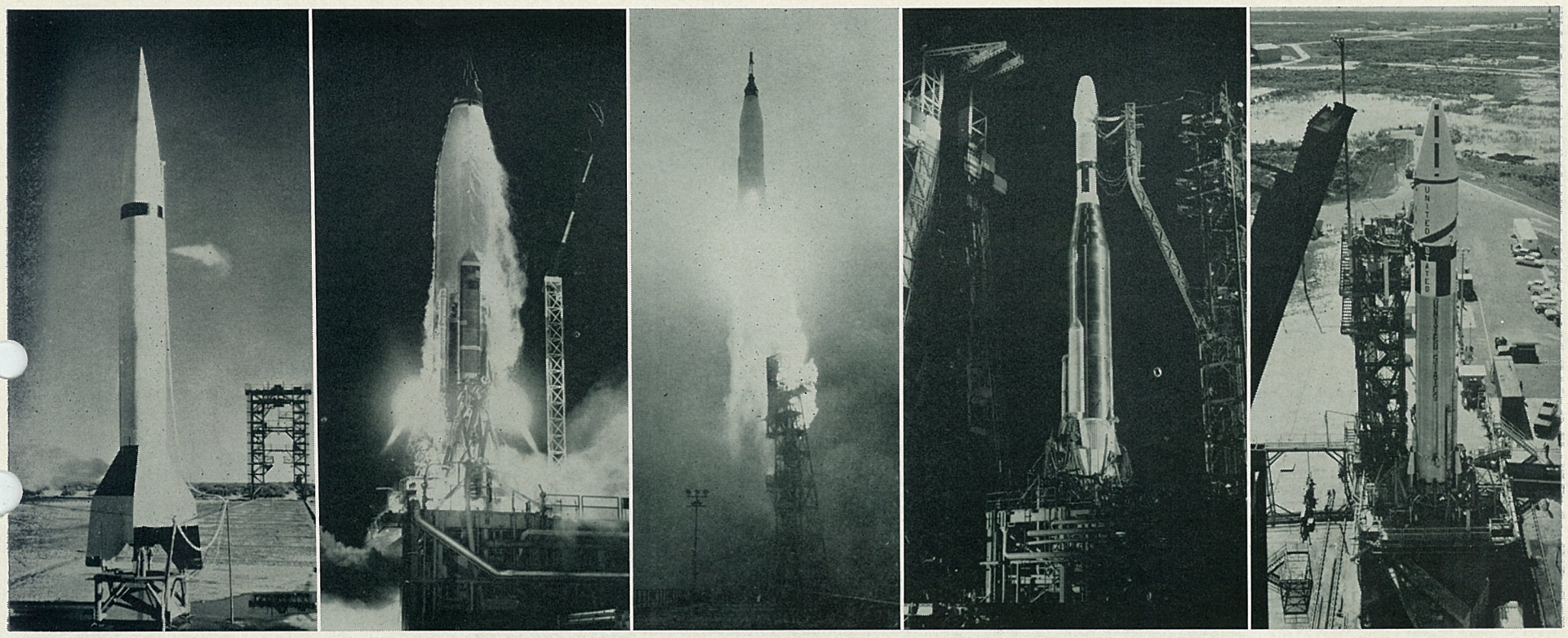
United States delegates were J. J. Donovan, Department of Defense Research and Engineering; V. L. Friedrick, C. M. Hudson, Maj. R. D. Lambourne, U. S. Army; Maj. C. F. Arantz, Lt. Col. R. M. Cosel, Lt. Col. E. N. Myers, A. Frohlick, U. S. Air Force; M. R. Moore, U. S. Navy; Bruce Birkett, Carl Erickson, Paul E. Fiske, John Maynard, Byron Summers, L. J. Whitaker, Navy Electronics Laboratory, San Diego, Calif.

PLEASE DON'T SEAL COMPANY MAIL

GD/Electronics people at San Diego are asked not to seal any outgoing company mail. Mail must be left open for inspection at the GD/E mail room.

WELCOME—GD/Electronics-SD general manager, John L. Lombardo, greets group of scientists and engineers from England, Canada, U.S. at all-day presentation of GD/E capabilities last week.

SEMINAR NO. 20 — Latest men to complete value control training in seminar No. 20 at GD/Convair report at April 30 "graduation" session on two projects which could save division considerable sum.



IT'S BEEN A LONG TIME — General Dynamics this month joined with other major space contributors in saluting the Air Force on its 10th anniversary of ballistic missile and space progress. Through all the years Dynamics, particularly its Astronautics division, has been a close partner. Major milestones in which GD participated are illustrated above. From left: MX-774 at White Sands, N.M. 18 years ago, "early bird" which pioneered many innovations and led to Atlas missile; Atlas 10-B launch in December, 1958, which broadcast President Eisenhower's Christmas message from space; Atlas 107-D launch, May, 1962, that placed Scott Carpenter and "Aurora 7" in orbit; Atlas/Agena launch, August, 1962, of Mariner II spacecraft; Atlas/Centaur, before launch at Cape Kennedy, Nov. 27, 1963, paving way for Surveyor.

Decade of Progress In Missiles Recalled

This month the United States Air Force is observing its 10th anniversary of ballistic missile and space progress—a decade in which more scientific and technical advancements have been achieved than in any century in history!

Fittingly, General Dynamics Corporation is taking part, since many of its divisions have been key contributors to this progress. More, they are geared to shoulder equal or additional loads in the future.

For example, Astronautics Division this week (May 18) turned over to the Air Force the initial Atlas SLV-3, a standardized version of the famed Atlas space launch vehicle destined for many space roles in the future.

Looking backward, it is difficult to pinpoint a time when actual ballistic missile development really began. Consolidated Vultee worked on the MX-774 program in 1946. This was the nation's first long-range ballistic missile program, which contributed at least three key developments incorporated in every subsequent missile developed.

However, a decision made in 1954—to accelerate development of the Atlas ICBM — set the future course of U. S. military strategy and laid the foundation for our national space program.

At that time B. A. Schriever, then a brigadier general, gathered a core of key officials in a former school at Inglewood, Calif., to guide all future ballistic missile development. This has evolved into the Air Force Systems Command under Gen. Schriever. It guides development of all missile and space development for the Air Force and assists such agencies as National Aeronautics and Space Administration in obtaining launch vehicles.

Some indication of the complexity of this effort is evidenced in budgets. In 1954 the missile budget was a modest $4 million; in 1960 it was $3 billion. Some $65 to $70 billion has been spent on missiles and space vehicles to date!

While many General Dynamics divisions have made contributions, Astronautics has been more deeply involved during this decade than others. It was created for Atlas development.

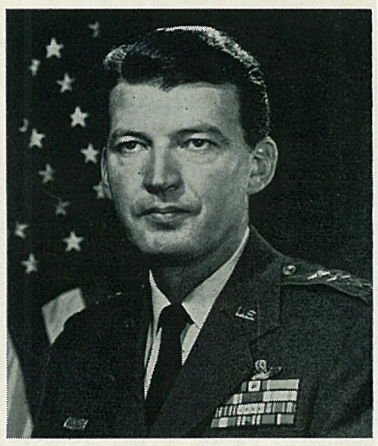
Project MX-1593 — an outgrowth of MX-774—was initiated in 1951, although it progressed slowly, often on the strength of company funds. Then with assignment of top priorities, MX-1593 (Atlas) moved into high gear. Fabrication began in 1955 and testing shortly thereafter.

The first fully successful Atlas flight was in December, 1957. Concurrent with research and development of Atlas, operational sites were designed and built. In September, 1959, the first (at Vandenberg AFB) was declared operational. By December, 1962, Astronautics and the Air Force had turned over to the Strategic Air Command 126 Atlas launch sites for 12 squadrons.

Developed as a defense weapon, Atlas was to prove equally valuable as a space launch vehicle. In December, 1958, it made its first launch of this kind in Project Score.

Subsequently, it has been used for launch of spacecraft in the Ranger, Mariner, Fire, ABRES and Mercury programs, plus various classified Air Force projects. It has served as part of the Atlas/Centaur launch vehicle. And it has been earmarked for many additional space probes in the future.

In addition to Astro, other General Dynamics divisions making significant contributions to space programs include Fort Worth, Convair and GD/Electronics-San Diego.



PIONEER — Gen. Bernard Schriever pioneered Air Force ballistic missile development, operating at first from former school at Inglewood, Calif. During decade, organization evolved into Air Force Systems Command which guides all AF missile and space efforts.

VALUE LECTURE MADE BY PHONE

GD/Astronautics' Everett Lindem recently carried the Value Engineering "message" coast-to-coast by conducting a class at Brevard Jr. College, Florida, via long distance telephone from San Diego.

Lindem, of educational services (Dept. 130-3), conducts GD/Astro's in-plant VE seminars on a one-a-month basis.

The "visiting lecturer" session was arranged by San Diego City College. Lindem spoke by phone from the San Diego campus, and his remarks were amplified in the Florida classroom. A conference arrangement picked up student response to permit class participation.

Lending a hand in Florida was R. E. Flanagan of GD/Astro industrial relations at Cape Kennedy who handled training aids accompanying Lindem's lecture. Aids were carried to Florida by G. E. Creekbaum, Dept. 450, who made the trip on other company business.

Wide Products Range Outlined in Brochure

Coming off the presses this month was a new General Dynamics Corporation capabilities brochure, 8½ x 11 in., magazine format, illustrated, with some photos in color.

Designed as a general information tool and published by the Corporate Office, the brochure is headed "Exploration 1964" and in brief but dramatic manner covers high points of General Dynamics activities. The foreword reads:

"Although man is a creature of the land and has lived on it for many thousands of years, his knowledge of his native environment is far from complete. His questing mind and venturing spirit have taken him in successive ages onto the seas and beneath them, into the air and, now, to outer space.

"General Dynamics Corporation is dedicated to furthering man's progress in each dimension through advances in science and technology. The 80,000 men and women who work today at its 13 divisions are, in a very real sense, explorers of the land, sea, air and space."

General Dynamics endeavors are described under general subheadings:

LAND: General Atomic division's accomplishments in nuclear power; Electronics-San Diego's and Electronics-Rochester's development of sophisticated data processing and transmitting; Stromberg-Carlson's progress in telecommunications; GD/Pomona's Redeye and Mauler; GD/E-SD's hand-held radar; Convair's LALO (for Low-Altitude Observation) which involves an unmanned aerial observation system using television to transmit battlefield situations; Canadair's amphibious utility vehicle, Dynatrac. Industrial products include Material Service division's hollow-core slab, Dynacore; Electro Dynamic's high performance electric motors; and Liquid Carbonic's many contributions.

SEA: Electric Boat's long dominance in undersea craft is reviewed, with emphasis upon nuclear submarine accomplishments; Pomona division's Advanced Terrier and Tartar are touched upon under "tactical missiles."

AIR: GD/Fort Worth, Convair and Canadair are prominent in this category with mention of FW's work on the F-111 variable wing fighter; Canadair's development of CL-84, designed for vertical takeoff and landings; an experimental aircraft for limited warfare, under study at San Diego; and a modification of Convair-Liners to turboprop power.

SPACE: GD/Astronautics' Atlas is reviewed, Convair's Little Joe II, Astro's Centaur program (pioneering with liquid hydrogen) and Astro's research into sustaining life in space for long periods of time.

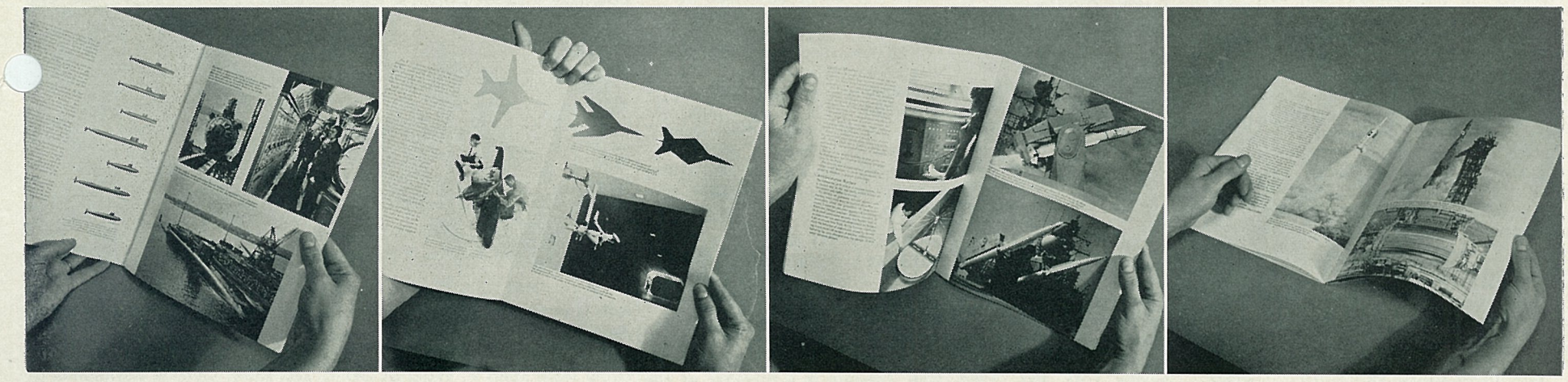
Additional C-141 Business Foreseen

Slick Corporation has ordered four Lockheed 300B (commercial version of the C-141) fan-jet airfreighters, and has obtained an option on two others.

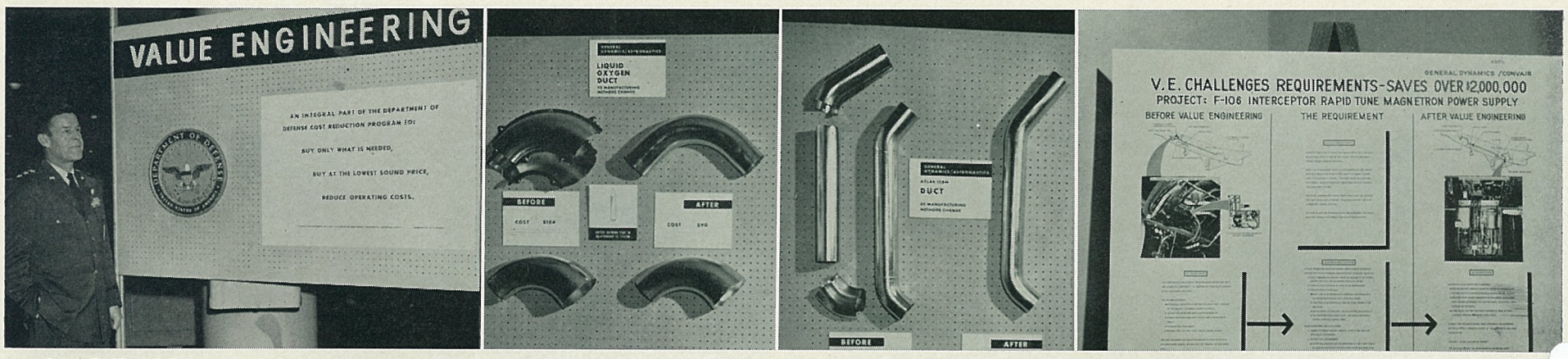
GD/Convair has the subcontract for building empennages for the huge cargo transport.

GD/E MEN ATTEND ELECTRONICS PARLEY

John L. Lombardo, division head of GD/Electronics—SD, is representing the San Diego Chapter of Armed Forces Communications and Electronics Association as official delegate at the national convention this week (May 19-21) in Washington, D.C. Other GD/E personnel attending include J. W. Colvin, Payne B. Johnson, R. L. Brouillard, A. D. Melvin, S. M. Chesler, J. H. Gurley.



MANY PRODUCTS — Recently published General Dynamics Corporation capabilities brochure covers wide range of activity pursued by Dynamics divisions, involving major contributions on land, under the sea, in the air and in space. Above are a few of brochure's photo layouts.



AF LOOKS AT VE — At left Lt. Gen Thomas P. Gerrity, Air Force deputy chief of staff, systems and logistics, officially opens recent week-long AF Value Engineering exhibit in Washington, D.C. Center shots are of two GD/Astronautics value engineered projects, representing changes in hardware manufacturing which saved almost $400,000 on Air Force contracts. At right is GD/Convair display explaining how over $2 million was saved AF by value engineering on F-106 kit order.

Fourth Mexico Tour Forming

General Dynamics travelers can sign now for the fourth de luxe tour of Mexico, Jim Hardison of GD/Convair Dept. 15, tour conductor, announced.

All GD employees in San Diego, and their families, are eligible to join the two-week tour. Dates are Aug. 21 to Sept. 6.

Complete itineraries will be at Convair, Astro, and GD/Electronics employee services, said Hardison, and a preview of the entire trip will be shown in colored slides June 8, 7 p.m., at Convair executive dining room.

The color shots were photographed during last summer's tour covering the same route and including the same highlights scheduled for the coming trip.

Everyone interested is urged to attend the showing and see the Mexican sights which they will visit in person on the tour. Departure is from Mexicali by air conditioned train. Stops will be made at Mazatlan, Guadalajara, several days in Mexico City, Cuernavaca, Taxco, Acapulco, and return to Mexico City by bus.

Package price for the entire trip, including transportation, two meals a day, accommodations at luxury hotels, and admission to attractions, is $360 per person.

Ten per cent, or $36, is to be paid by July 1. Final payment must be made by Aug. 1.

Call Hardison at his home phone, 276-5805, evenings, for complete information.

★ ★ ★

First CRA-ARA tourist Spanish class will be June 8 in Convair executive dining room, 7-9 p.m.

The 12-week course is open to all General Dynamics people free of charge. No textbooks are required. Meetings will be each Monday evening.

Although the simplified language course is pointed specifically at people intending to travel in Mexico, it is open to anyone interested in learning basic words and phrases, or refreshing his knowledge of Spanish fundamentals.

Students enrolling in this summer's course will have the added assist of daily practice over the telephone, said Hardison. A series of records supplements the weekly assignments.

GD Men to Direct Instrument Society

General Dynamics men dominated a slate of officers elected recently by San Diego chapter, Instrument Society of America.

President is Charles F. Hill of GD/Astro, with Richard K. Barnett of GD/Electronics-San Diego, vice president; Julius Rayfield, GD/Astro, recording secretary; and Darlo Clemens, GD/Astro, corresponding secretary.

Board members at large include Martin Kantor of General Atomic and GD/Astro's Harry Norton.

Salvage Schedule

Salvage yard schedule at Astro and Convair sites for the next four weeks is:

GD/Convair—May 23, June 6.

GD/Astro—June 13.

No employee sales will be made Memorial Day (May 30).

PAY-OFF — Richard B. Hansen, Dept. 525-2, left, looks pleased after accepting $500 as first installment of award for Employee Suggestion from W. W. Withee, vice president — engineering. Second payment, in six months, may bring bigger grin: Hansen's total award may be $1,530.

$500 INSTALLMENT ON ASTRO ES PAID

Richard B. Hansen, engineering draftsman in GD/Astro Dept. 525-2, has received a check for $500 as first installment on an Employee Suggestion (ES) award which may potentially earn him a total of $1,530.

GD/Astro's ES program rewards hourly employees for their cost saving ideas by paying them 10 per cent of the first year's net savings which result from their suggestions. Partial payment is made when the ES has been installed for six months; the balance when a full year's savings are reported.

Hansen's suggestion concentrated on GD/Astro's Standard Parts Manual. Nearly 130 sets of these books were in existence, and would have required an expenditure of $22,689 to maintain and up-date.

Through an engineering study, it was determined that only 30 sets of manuals were actually required, and new systems of maintaining these remaining sets were established.

Hansen's ES is credited with estimated net savings of $15,303 in its first year of use.

Instrument Society To Hear C. R. Smith

Instrument Society of America, San Diego Section, will meet tomorrow (May 21) to hear Clarence R. Smith, GD/Convair design specialist, discuss metal fatigue.

Dinner meeting will be at 7 p.m. in the U. S. Grant Hotel.

Smith's topic will be "Designing Fatigue Resistant Structures," drawing heavily on his forthcoming book, "Tips on Fatigue," to be issued this summer through the U. S. Bureau of Documents.

Reservations, $3.50 each, may be made by calling boosters: GD/Convair—W. A. Dershem, ext. 2121; GD/Electronics—R. K. Barnett, Plant 2, ext. 22; Astro—Julius Rayfield, ext. 3685; L. Schenke, ext. 2463, both main plant; Charles Hill, ext. 1322, Plant 19; General Atomic—J. Bauer, ext. 1210.

Two Long Weekends In Store For GD Folk

Holidays this year fall just right to give three-day weekends to General Dynamics people.

They can plan an extra long weekend over Memorial Day weekend with Friday (May 29) designated a holiday to observe the legal holiday which falls on Saturday.

A long weekend will be enjoyed over the Fourth of July, too, as it is a Saturday this year.

Convair Assists Go to Scholars

Contributions from two GD/Convair organizations helped make possible first awards to seven local students by the newly-formed San Diego County Citizens Scholarship Foundation.

Largest gift, $1,000, was made by the Convair Employees' Con-Trib-Club. Convair Management Club diverted $235 of its raffle proceeds to the new scholarship organization's "Dollars for Scholars" drive. (The Management Club, in addition, paid out $1,500 to its own three remaining scholarship holders.)

San Diego County students receiving the grants at the May 7 awards dinner were Alexander Araiza, Robert E. Broska, Carrol E. Crannell, Kathleen Ann Murray, Linda Eileen Packer, Lyle Jean Roberts, Cynthia Stapp.

All will attend a college or university within San Diego County, as part of the stipulation with the awards.

Young GD Musicians To Play Concert

General Dynamics young people will be heard with the Civic Youth Orchestra at its eighth annual spring concert June 6, 8:30 p.m., in Russ Auditorium.

At least a third of the 90 players are children of GD people in the San Diego area, said Mrs. H. W. Rubottom, wife of GD/Convair's chief of educational services, who serves as secretary.

Lawrence Christianson, head of Mount Miguel High School music department, will conduct. Karen Moe, concertmistress, and Pamela Cordell, principal viola, will be featured soloists.

Admission is free.

Brending to Attend Ordnance Gathering

D. O. Brending, GD/Electronics-San Diego requirements engineer, will make a presentation on GD/E's S-C 4020 computer recorder next week (May 28) at the Technical Documentation Section of the American Ordnance Association in Dallas, Texas.

Brending's subject will be "A Proposed System for Magnetic Tape to Microfilm Conversion," and will be scheduled during the Advanced Technology in Automating Graphic Presentation subsection.

JANSSEN TO NYC FOR AIA MEETING

J. J. Janssen attended the national conference of the Aerospace Industrial Association last week (May 14-15) in New York City as GD/Convair's representative. Janssen is a member of the AIA's preservation and packaging committee.

Astro and Convair Value Exhibits Placed on Display in Pentagon

GD/Astronautics and GD/Convair achievements in applying value engineering to Air Force systems and equipment were included earlier this year in an Air Force exhibit at the Pentagon, Washington, D. C.

The display, on the Pentagon Concourse, was opened officially March 9 by Lt. Gen. Thomas P. Gerrity, Air Force deputy chief of staff, systems and logistics.

Distinguished visitors included Thomas D. Morris, assistant secretary of defense (installations and logistics); Eugene M. Zuckert, secretary of the Air Force; R. H. Charles, assistant secretary of the Air Force (installations and logistics); and other Department of Defense officials.

Following Pentagon display, the exhibit was shown at Headquarters, Air Force Systems Command, Andrews AFB, Md.

In a letter to GD/Astro President J. R. Dempsey, Brig. Gen. M. C. Smith, Air Force director of procurement policy, expressed personal appreciation for GD/Astro's participation in exhibit preparation.

GD/Astro supplied three value engineered projects for display. All applicable to the Atlas ICBM or Atlas space booster, these with related projects, had reduced cost of GD/Astro's performance on Air Force contracts almost $400,000 — a saving which was passed directly to the customer.

GD/Convair's display outlined a value engineering analysis which saved over $2 million for the Air Force on design and delivery of a specific order of hydraulic power package kits for the F-106. (GD/NEWS, Feb. 12, 1964).

Convair Daughter Wins National Honor

GD/Convair daughter, Tammy Feeney, who swept the Greater San Diego Science Fair in girls' division last month, went on to capture third place in national competition.

Tammy, 14-year-old daughter of Donald M. Feeney of Convair engineering, was youngest of the 420 exhibitors in the National Science Fair in Baltimore, Md. Her project, a demonstration of how plant growth can be accelerated, won a $50 prize which she will apply toward purchase price of a microscope.

Mr. and Mrs. Feeney and Tammy's younger brother accompanied her to Baltimore.

Lucky GD/E Girl Wins Mink Stole

GD/E's Lee Schotte still can hardly believe her luck after winning a mink stole and man's alpaca sweater on a single $1 ticket last week.

Lee, who is employed in contracts at GD/Electronics-SD, won the grand prize in the drawing at the May 12 meeting of the American Business Women's Association held at the Stardust Hotel.

She bought her lucky ticket from Cecile Hoyle, also of GD/E and program chairman of the business women's group.

SAVE Installs New Officers

A General Dynamics slate of officers was installed last Tuesday evening by the San Diego Chapter, Society of American Value Engineers (SAVE), to direct activities for the next year.

New officers are: H. P. Williams, GD/Convair manager of value control, president; George Bartolomei of Astro, first vice president; M. M. Reeder, GD/Electronics value control coordinator, second vice president; John V. Wahl, GD/E, secretary; Wayne Turner, GD/Convair, treasurer.

They succeed outgoing officers: A. S. Freedman, GD/E, president; Don Shirk of Solar, first vice president; Herman Braasch of Ryan, second vice president; Don Weisinger of Convair, secretary; and Bartolomei who served as treasurer last year.

E. D. Heller, Astro cost reduction and value control manager, reported on the national SAVE board meeting in his capacity as Southwest Regional Director.

A SAVE award went to Frank Wyatt, San Diego teen-ager, for his Science Fair project.

SAVE INSTALLATION—H. P. Williams of GD/Convair (seated left) is congratulated on election to president of San Diego Chapter, American Society of Value Engineers, by GD/Astro's E. D. Heller, installing officer. Other new officers, all of General Dynamics, are (from left): John V. Wahl of GD/E, secretary; George Bartolomei of Astro, first vice president; Wayne Turner of Convair, treasurer; M. M. Reeder of GD/E, second vice president.

Fathers to See Dodgers Play

Convair and GD/E fathers can have a special outing with their sons (or daughters) if they sign up at once for the coming CRA bus trip to the Los Angeles Dodgers game against St. Louis Cardinals next month.

Tickets go on sale tomorrow (Thursday) at Convair employee services for the special trip on Saturday, June 13. Bus fare and game admission is $5.25 per person.

Bus accommodates 40 people, so the first 40 buying tickets will be sure of seats.

Departure will be at 9:30 a.m. from Convair executive parking lot, Bldg. 19, Plant 1. Travelers are asked to report at least 15 minutes ahead of time. Return time will be around 8 p.m.

En route home an hour's stop will be made at Knott's Berry Farm so the group may buy their dinners.

Alcoholic beverages will not be allowed on the bus, but refreshments and drinks may be purchased at the ball park.

Pete Beyrer of CRA, who is arranging the tour, said that more such group trips will be scheduled to other Dodger games later in the season.

Ice Capades Rate Reduced

Today is the last chance for Convair and GD/E people to pick up order blanks which allow $1 discount on "Ice Capades" performances. Order envelopes are at Convair employee services.

The reduced price is good for tonight's (May 20) and tomorrow's showings at Westgate Park. With the discount, reserved seats may be purchased for $3, $2.50, or $2 each.

The ticket orders must be taken or sent to Ice Capades box office at Westgate Park.

Other discount offers available at Convair employee services, Bldg. 32, Plant 1, are:

"South Pacific" at Capri Theater through June 11—exchange tickets allow 59-cent reduction on general admission, regularly $1.49.

Circle Arts season tickets at two-for-price-of-one with $5 membership in Circle Arts Angels.

San Diego Ballet Co. performances—exchange tickets good for 30 per cent discount off regular admission to any program through Oct. 31.

Mission Valley Ice Plaza, half price with special coupons.

Mary Senn Wins $100, Third in Trail Race

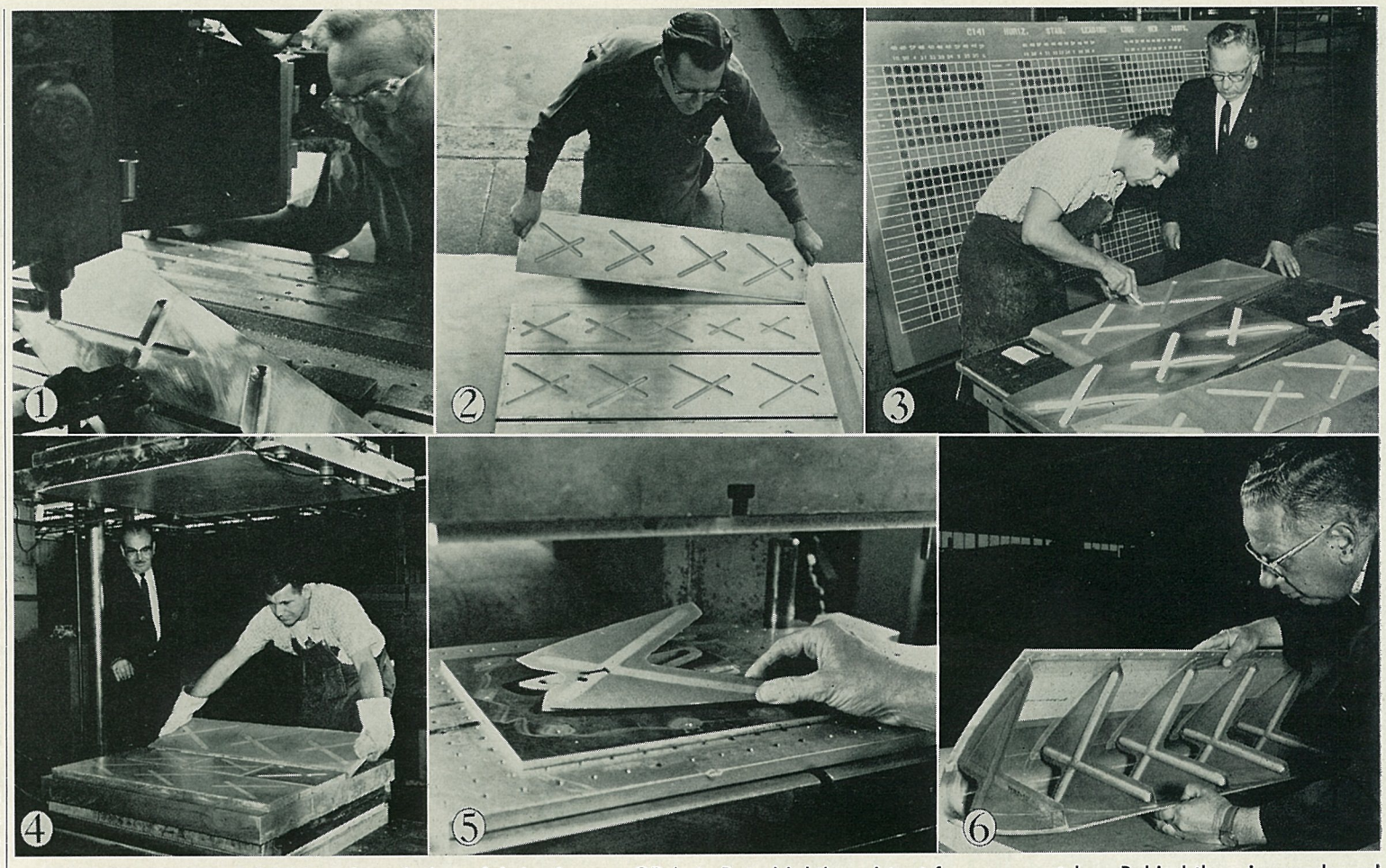
CRA riders won two of the four cash prizes for best times in the annual 100-mile trail ride sponsored by International Trail Riding Association and Borrego Springs Chamber of Commerce late last month.

Mary Senn, wife of George Senn of GD/Convair's standards lab, made the two-day ride in 11 hrs., 15 min., to win $100 and belt buckle for third place. Sylvia Haywood, daughter of Ilse Haywood of Convair electric bench, junior member of the Riding Club, was fourth with a time of 12 hrs., 26 min. She won $50. Her mother came in fifth, four minutes later, just out of the money.

Eighteen Riding Club members turned out for the CRA campout and trail ride honoring the long-distance riders the weekend of April 25-26 at Los Caballos camp site.

PISTOL CLUB TO HOST IRC SHOOT JUNE 14

CRA Pistol Club will be host group for the pistol division of the annual IRC Gun Shoot on June 14 at San Diego Police Pistol Range, Home Ave. and Federal Blvd. Convair and Astro will enter teams. All General Dynamics people are invited to take part. Entry fees are paid by CRA and ARA.



SPEEDIER BY THE DOZEN — Speeded-up fabrication at GD/Convair of fiber glass reinforcements for C-141 leading edge is made possible by new tool for multiple layup (upper left) being grooved on True Trace Mill by A. L. Davis of Dept. 101. In upper center, C. R. Thompson (also Dept. 101) lines up finished set of aluminum tools which can turn out 18 different size leading edge webs in one operation. At upper right, R. J. Wilsterman, plastics assembler, lays up fiber glass parts on tools as Harry Rote (right), assistant foreman, watches. Behind them is scoreboard on which Wilsterman keeps track of number and size of parts complete and in stock. At lower left E. D. Robinson, Dept. 129 foreman, looks on as Wilsterman removes cured webs from hydraulic press. In lower center final configuration is punched out on punch press in fabrication. At lower right Rote examines leading edge containing reinforcements made by new process. New tool concept originated in Dept. 101.

33 Teams Vie In Keg Tourney

Thirty-three teams battled it out in team competition during the first weekend (May 9-10) of CRA plant bowling championship.

Davidson Bros. team took high score in the men's division with 3,118. General Dynamics Mixers won the mixed team event with 3,111.

Members of the Davidson Bros. team were John Adams, Carl Johnson, Don Stewart, Alex Kuhnel, and Charles Swearingen. Davidson Bros. operates the vending machines throughout General Dynamics divisions in San Diego.

General Dynamics Mixers were Mr. and Mrs. Charles Baker, Mr. and Mrs. Bert Lee, and Forest Erwin.

Altogether, near 200 keglers were entered in the annual tournament, said Commissioners Jim Hayman and Mike Brooks.

Doubles and singles events were to be rolled last weekend (May 16-17).

Trophies will be awarded to winners in all divisions and all-events some time this week.

Discount Offered On Padre Tickets

Ball fans may pick up exchange tickets for reduced prices to coming Padre Baseball Nights, chosen for IRC discount of 75 cents on reserved or general admission.

Tickets will be good for Thursday (May 28) or Monday (June 1). The May 28 game is with Seattle; June 1, with Spokane.

Tickets for either night now are on hand at Convair employee services. They must be presented at the Padres box office, Westgate Park, for seats. Reduced prices, with the tickets, are $1.25 for box seats and 50 cents for general admission.

Friday Is Last Day To Sign for Golf

This Friday is final day for sign-ups in the NMA Southern California District Golf Tournament to be held June 6-7 over six San Diego area courses.

Convair Management Club golfers may sign through Terry Kell, ext. 2225, Plant 1.

GD/Electronics Management Club members are to sign with Ernie Paul of GD/E Plant 2, ext. 2193.

Entries are taken by twosomes only. Fee is $12 each for the two days of play.

CRA Calendar

(Convair Recreation Association has some 30 activities in operation for Convair and Electronics people. For information call CRA Headquarters, ext. 1245.)

★ ★ ★

AEROMODELERS — Flying sessions Saturday and Sunday mornings, 8 a.m. to 1 p.m., Clairemont Mesa Flying Site.

COIN CLUB — Meeting May 21, 7:30 p.m., Convair cafeteria, Pacific Hwy.

FENCING — Workouts and instruction each Friday night, 7-10 p.m., YWCA, 10th & C Sts.

GARDEN CLUB — Joint CRA-ARA meeting June 3, Floral Association Bldg., Balboa Park.

GLIDER CLUB — Meeting second Saturday of month, 8 p.m., Golden Hill Playground Recreation Hall, 28th & A Sts.

GUN CLUB — Troy trapshoot May 31, Gillespie Field Gun Range.

ICE SKATING — Thursday ice skating sessions, Mission Valley Ice Plaza, 6:30-8 p.m.

MODEL RAILROAD — Work nights, Fridays, 7:30 p.m.; open sessions, Sundays, 1-4:30 p.m., House of Charm, Balboa Park.

MOVIES — Reduced prices for General Dynamics people at State Theater, Euclid and El Cajon Blvd. General admission: adults, 75¢; children, 25¢.

PISTOL CLUB — CRA club shoot May 24, 9:15 a.m., San Diego Police Pistol Range, Federal Blvd. and Home Ave.

RADIO CLUB — Next meeting May 28, 8 p.m., Harbor Drive club headquarters.

ROAD RUNNERS — Meeting May 21, 7:30 p.m., Gillespie Field Clubhouse.

SOFTBALL — First league game in "slow pitch" plant tourney June 4.

SPANISH — First class of CRA-ARA tourist Spanish course June 8, 7-9, Convair executive dining room. Colored slide showing of Mexican tour.

SPORTS CAR CLUB — Meeting June 3, 7:30 p.m., Convair executive dining room.

STAMP CLUB — Meeting June 4, Convair executive dining room.

WATER SKI CLUB — Skiing weekends on Mission Bay. Call Gene Sevigny, ext. 2701, Plant 1.

New Tools Developed For C-141 Leading Edges

New tools, which make possible multiple production of fiber glass parts for C-141 leading edges, have cut the fabrication time for these specific parts by more than half, according to the most conservative estimates as the new process goes into operation at GD/Convair.

The new method of making fiber glass webs, or reinforcements, for the interior of the leading edges was developed jointly by Depts. 101 and 128. It can be considered a part of the concerted drive toward acceleration and cost improvement of the entire C-141 program, said R. W. Miller, GD/Convair's C-141 program manager.

Rate of C-141 empennage production will be pushed to four a month by July of this year and to seven a month early next year.

Fabrication of the small webs in quantities greatly reduces manual work of preparing and shaping them one at a time, as done by the previous method, said E. D. Robinson, Dept. 128-129 foreman.

Each leading edge requires 88 webs, 44 for the left side and 44 for the right. Each of the small parts is a different size and slightly different in shape to fit the varying contour of the leading edge.

With the new tools, as many as 18 webs can be prepared, then cured at one time in the heated hydraulic press in plastics department. This completely eliminates the time-consuming vacuum bagging process. Final configurations are blanked out in Dept. 101 on a punch press instead of being cut on power saws to separate patterns.

In addition to saving a great deal of time, and consequently money, the quality of the parts now is much superior to those made by the former method, said H. G. Rote, Dept. 128-129 assistant foreman.

Ora Carpenter Tops Women's Golf Meet

Ora Carpenter held low score in the GD Women's Golf Club tournament played May 9 at Singing Hills.

Margaret Clark was second and Jerri Cooper, third, in the monthly golf tourney. Fifteen GD women turned out for the match.

Next tournament will be the second Saturday in June (June 13).

Regular social meeting of the golf club will be tomorrow night (May 21) at 7:30 p.m. at the home of Margaret Clark, 4612 Del Mar Ave., Ocean Beach. All GD girls interested in golf are welcome to attend.

Seven Teams Sign Up For Slow Pitch Play

Seven teams, five from Convair and two from GD/E, have signed for the CRA "slow pitch" softball plant league which will swing into action early next month.

First league game will be June 4, said Pete Beyrer of CRA.

All games will be scheduled on Thursday nights at Central Playground, 41st and University, and Linda Vista Playground.

Phil Poche Hooks 6-lb. Large Mouth

Phil Poche of the CRA Fishing Club hooked the largest bass on opening day of the fishing season at San Vincente Lake the last day of April and won $10 for top fish of the month from the Convair club.

His 6-lb., 7-oz. large mouth bass is a sure-fire button fish and, very possibly, will be in the trophy class, said CRA Commissioner Bob Menzie.

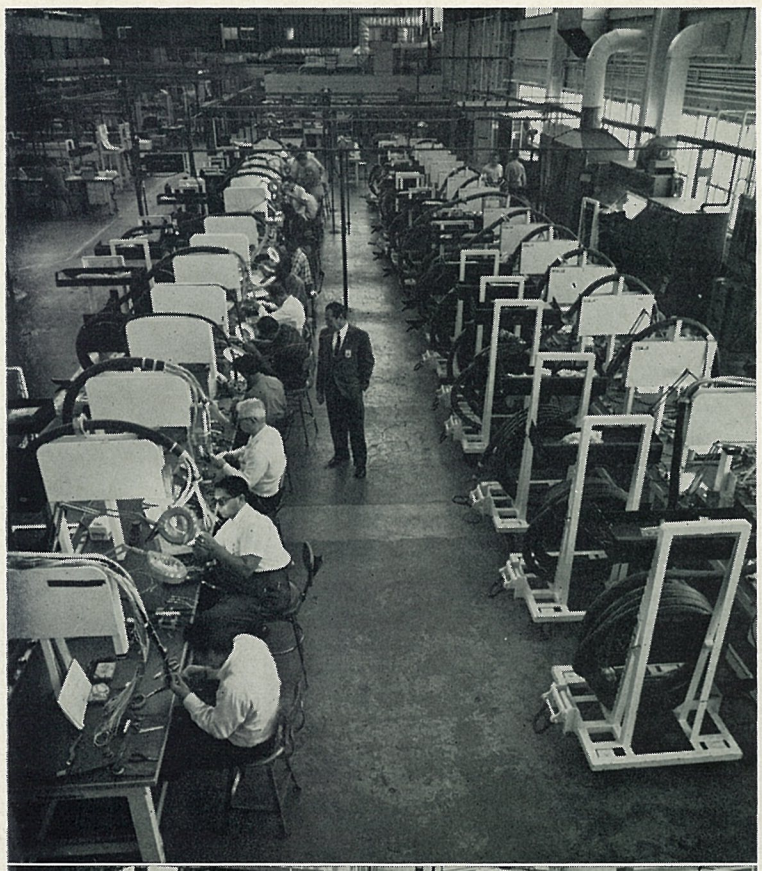
Menzie's wife, Ruth, won $5 for the 13½-in. trout she caught in Lake Murray.

Two prizes, $10 for first and $5 for second, will be awarded for top fish throughout the summer months.

Foundation Given $250 by Con-Trib

GD/Convair Employees' Con-Trib-Club contributed $250 to the National Cystic Fibrosis Foundation, San Diego Chapter, through action of the Con-Trib Committee yesterday.

The Foundation is setting up a fund to establish a diagnostic and care clinic in San Diego, which will be supported in part by funds from the National Foundation. Additional funds will be raised through a door-to-door campaign to provide public information and assistance to parents of children afflicted with cystic fibrosis.



CABLE LINE — Foreman Al Landry of Astronautics (top photo) stands in aisle where electrical cable assembly is in operation. In lower photo H. L. Ferrell moves dolly which speeds operation and protects materials.

GD/Astro Turning Out Own Cable Assemblies

Establishment of a complete capability for turning out detailed electrical cable assemblies is among big steps taken by GD/Astronautics to reduce costs and improve product reliability.

Started on a modest scale about a year ago, this facility now handles Astro's entire cable requirement!

Current production centers on multi-strand, neoprene shielded umbilical cables, land-line instrumentation units, cables for closed circuit television, telemetry and various radio frequency applications. Further, its flexibility allows handling just about any requirement, from quantity lots to one-of-a-kind orders. Work is performed in support of every current program as well as research and development. Cable repairs are resulting in noteworthy savings.

Sixty-three members of Dept. 344-2 man assembly operations on two shifts, working in Bldg. 3 at Plant 19 under Foremen Al Landry on first shift, and Henry Leboffe on second. The department, known as support operations, is under Clyde Medearis, general foreman.

Previously, Astro acquired its cables from subcontractors and storing and rerouting increased dangers of damage. As large volume requirements dropped, costs per unit spiraled, making establishment of Astro's own capability advisable.

Cables, acquired in bulk and cut to specifications, range in size from three inches in diameter (with 160 conductors) to less than a half inch.

Assembly of 2,000 cables for "F" series Atlas bases was among the first tasks performed. Cost was 20 per cent below the lowest vendor bid.

Two complete assembly lines are in operation. Electronic assemblers add connectors, plugs, etc., along each line, then conduct initial checkouts, Next step is potting and molding, if required. Finally, a detailed electronic checkout routine is performed.

Cables produced vary in cost from a hundred dollars up to $3,000 per single unit!

Experience has led to many innovations. With Astro's material handling group, Dept. 344-2 devised a special wheeled dolly. Cables ride on a half-drum, connectors, plugs, etc., in a container above. Fifty-two of these units are now in use, moved easily by a single man. Danger of damage is greatly reduced.

Potting and molding require heat to "cure" polysulfide and polyurethane compounds. At first a time consuming walk-in oven was used. Then Dept. 344-2 acquired heat clamp units which work much like waffle irons. Inserts make it possible to handle various sizes of cable at once, cutting time to a minimum.

"We are proud of our cable operation and ready to discuss requirements or repairs with any group," Medearis said.

END OF LINE — R. W. Meyer operates special potting unit that reduces "curing" time.

When telephoning, never mind the weather. Get to the point. Telephone time costs money.

'Mobility'

Irvine Shifts To GD/FW Div.

(Following are recent personnel transfers within General Dynamics divisions.)

Charles R. Irvine, with General Dynamics since 1931, from assistant to vice president-program development, Corporate Office, to GD/Fort Worth as program director RF-111.

Neil Whitley (1951) from Astro (Altus) to Fort Worth general purchasing; **John N. Remissong** (1951) from Astro (Cape Kennedy) to Electric Boat/Quincy as manager of industrial relations; **Arthur L. Jenkins** (1963) from Astro to GD/Convair engineering; **Pete E. Marenholtz** (1963) from Astro to Convair engineering.

Kenneth K. Chu (1962) from GD/Electronics-Rochester to Electric Boat systems and procedures.

William R. Holmes (1958) from GD/Convair to Electric Boat standards laboratory of research and development; **Margaret L. Maving** (1951) from Convair to GD/Electronics-San Diego material control; **R. F. Wimble** (1963) from Convair to Fort Worth airframe design.

Henry C. Kerr (1956) from GD/Pomona to Fort Worth aerospace technology.

Lawrence H. Way (1963) from Astro to Convair general accounting.

Gilbert D. Clark (1938) from Convair to Astro marketing; **Eugene H. Amory Jr.** (1951) from Convair to Astro purchasing.

ANOTHER CENTAUR STUDY UNDER WAY

Another study in the exhaustive series to ready GD/Astronautics' Centaur space vehicle to land the Surveyor spacecraft on the moon is now under way at NASA Lewis Research Center's Plum Brook Station, Sandusky, Ohio.

Involved are ground tests of an Atlas-Centaur-Surveyor configuration to prove the combination's capability to withstand flight pressures.

In the first tests of the complete launch vehicle-spacecraft configuration, engineers are using an electromagnetic "shaker" to study both lateral and longitudinal dynamics.

Fuel and oxidizer tanks of Atlas and Centaur are filled with simulated propellants for this series, but later tests will involve use of the extremely cold liquid nitrogen in the Atlas liquid oxygen tank.

Group Beneficiary Review Advocated

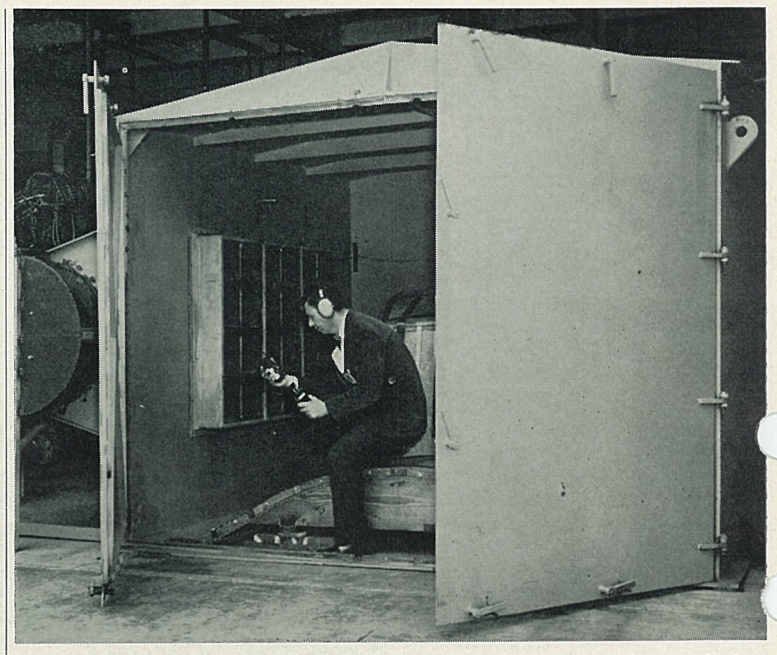
General Dynamics people at all divisions are urged to review names of beneficiaries listed on their group life insurance, and in the case of salaried people, on retirement plans, to be sure that information is up to date.

As family status changes—parents, husbands or wives die; single persons marry; divorced persons remarry — beneficiaries should be kept current.

As George Oatman of GD/Electronics-SD employee services points out, settlement of claims may be held up for months if names of beneficiaries are incorrect. In recent cases at GD/E, employees died with deceased persons listed as beneficiaries on insurance and retirement plans. Such instances cause a great deal of delay and litigation and loss of money through lawyers' fees.

Conference Speakers

W. E. Magnuson, chief of reliability control, publications, quality assurance, at GD/Astro, and Luther R. Kiersey, chief of quality control for Atlas product support, San Diego Air Procurement District (USAF), were speakers at the joint meeting of Los Angeles and Orange County chapters, Society of Technical Writers and Publishers.



NOISE SHAKING — G. H. Bosco calibrates microphone during preparation for test in new GD/Astronautics acoustic chamber for testing missile components at sound levels encountered during launch.

Noise of Blast-Off Measured As Guard Against Malfunction

Acoustic noise levels which can damage missile components and instrumentation during blast-off are being generated in a new acoustic test setup of General Dynamics/Astronautics dynamics test laboratory.

The acoustic lab, which has served Astro and Convair during development of the R3Y, 340/440, 880/990 transports, F-102/F-106 jet interceptors, Atlas, and Centaur, is keeping pace with the noisier space age where a malfunction of intricate electronic components caused by sound vibration could wipe out an entire mission.

The new 1,000-cubic-foot high intensity acoustic noise reverberation room, built to Astro acoustic lab specifications, produces a maximum sound pressure level of 155 decibels. This approximates levels that might be encountered during missile launch, as measured by acoustic test engineers, said G. H. Bosco, senior test engineer responsible for acoustic lab activities.

The chamber can be modified to achieve higher sound pressure levels when necessary, said Bosco, who is looking ahead to the time when the laboratory will be called upon to investigate how different levels and kinds of sound affect men enclosed in space vehicles during launch and for prolonged periods as they ride to far planets and encircle the earth.

The Astro reverberation chamber, now in operation, is powered by air from the nearby Convair high speed wind tunnel which stores 28,000 cubic feet of air in six pressure vessels at 600 psi. Air from the wind tunnel is driven through large pipes to the noise generator alongside the steel reverberation noise chamber. An acoustic filter grid, between the noise generator and chamber, allows sound into the room.

The test chamber is constructed of ¾-in.- thick steel and built with non-parallel sides, reducing dead spots as sounds are bounced from the uneven walls.

Microphones and accelerometers are mounted inside and outside the test specimen to pick up the sounds and vibrations during the short test times—from 3 seconds to one minute, approximating blast-off times.

Acoustic and vibration data is recorded on a 14-channel magnetic tape recorder in the blockhouse 15 feet away, where acoustic test engineers monitor the tests out of range of the intense noise at the chamber. The recorded data is later played back and analyzed in the dynamics test laboratory.

B. J. Campbell, test lab supervisor in charge of these tests, said that the close approximation of missile noise in the new chamber has enabled effective evaluation of acoustic isolation treatment for noise-sensitive missile components.

"This test information is supplying the design engineer with information to more effectively prepare for the more intense acoustic sounds that the future space vehicles will face with their internal load of man and delicate electronic equipment," continued Bosco.

Astro's high intensity acoustic noise chamber is available for component testing for any General Dynamics division. Bosco can be contacted at Plant 1, ext. 1813, for detailed information.

Among current projects now under way in acoustic lab facilities is integration of an instrumentation system destined for Vandenberg AFB to measure sound levels, vibration, and pressure pulse during missile launches.

Other types of acoustic work performed by the laboratory are panel sound transmission loss measurements, sound absorption coefficient measurements of materials, noise reduction, underwater sound, microphone and loud-speaker tests, sound measurements around and in aircraft and missiles.

WWI BONDS POSTERS HELP ASTRO DRIVE

World War I posters displayed in GD/Astronautics main lobby during the recent U. S. Savings Bond campaign, have been preserved from destruction both by accident and on purpose.

Forty of the posters, executed by the best American artists of the day—including James Montgomery Flagg—were the contents of an ancient European-style steamer trunk, discarded by its La Jolla, Calif., owner upon moving.

Ed Hemphill of GD/Astro art section (Dept. 126) noticed the trunk on the scrap heap, and investigated. Although the trunk itself was beyond repair, Hemphill recognized the merit of the posters, perfectly preserved inside.

Best Division Safety Records to Earn Dynamics Awards

Two Corporation-wide safety contests involving performances of all divisions during 1964 were announced this month by A. A. Hendrix, Corporate vice president-industrial relations.

The contests are in keeping with overall objectives of seeking substantial accident reduction and giving maximum attention to accident prevention.

Because of the diversified industries in which divisions operate, it is not possible to have a single contest which will give all divisions an equal opportunity of winning, Hendrix explained, so two awards are being inaugurated. One will recognize the division with the lowest accident rates during the year and another will honor the division that makes the best improvement, as compared to its own record over the previous three years.

The two awards will have equal standing in importance and Roger Lewis, General Dynamics president, will make the presentations to winning divisions at the end of the year.

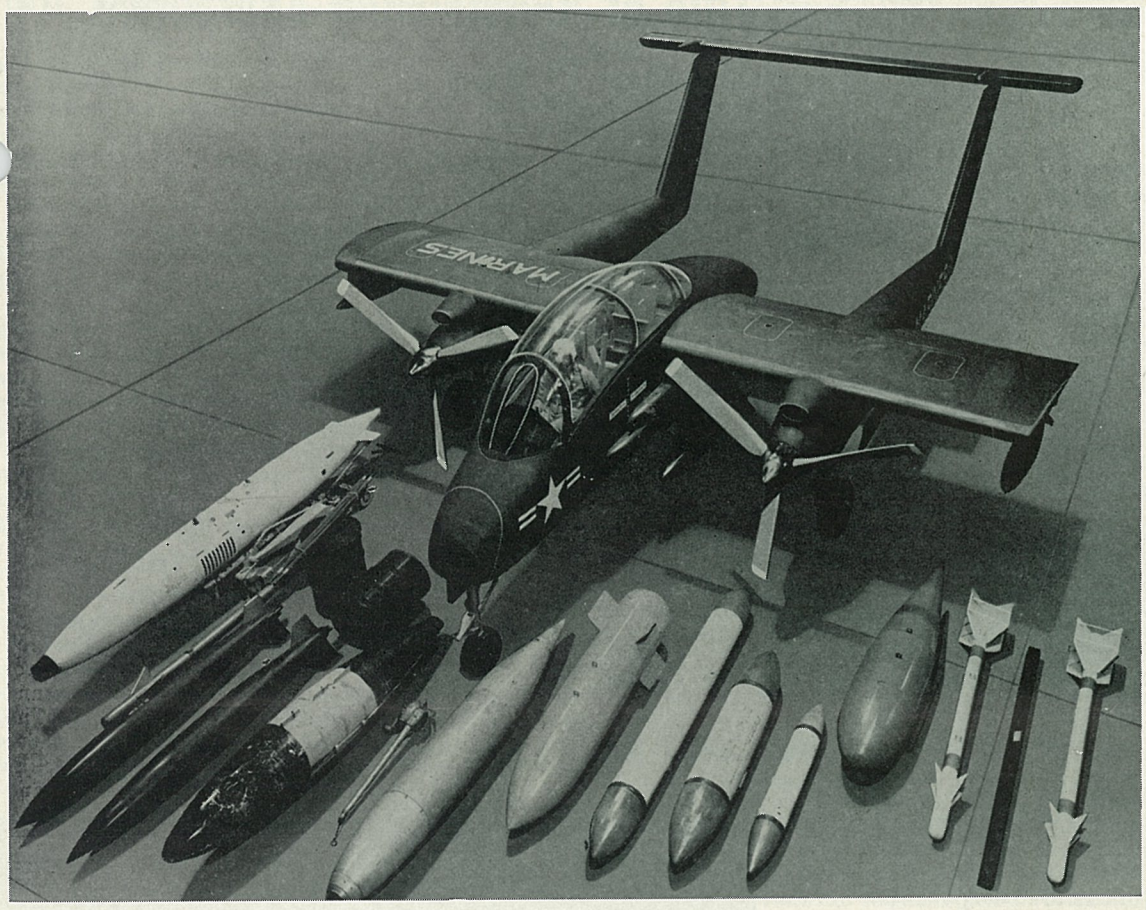
Pomona division currently is in first place in both contests.

GD

SAN DIEGO EDITION
(Serving GD/CONVAIR
and GD/ELECTRONICS)

GENERAL DYNAMICS
NEWS

Vol. 17, No. 12 PUBLISHED BY GENERAL DYNAMICS CORPORATION 52 Wednesday, June 3, 1964



CONVAIR'S "COIN" — Above is shot of full-scale mockup of light-armed reconnaissance aircraft developed at GD/Convair to meet DOD requirements for low-cost, easy-to-maintain counter-insurgency plane for brush-type warfare. In foreground are typical air-to-air and air-to-ground weapons aircraft could carry.

Convair COIN Design Studied

General Dynamics/Convair's design of a counter-insurgency airplane for use in limited warfare is one of several now under evaluation by the Bureau of Naval Weapons, Washington, D.C., it was disclosed late last month.

The aircraft, known as COIN (counter-insurgency) or LARA (light armed reconnaissance airplane) would be capable of operating from rough fields or country roads. It would be able to take off or land in an area the width of a football field and could operate from an aircraft carrier unaided by catapults or arresting hooks.

It also could be readily converted for amphibious operation, enabling it to operate from inland waterways throughout the world.

Overall performance is designed to be compatible with requirements of guerilla fighting, filling the gap between today's helicopters and high-speed jet aircraft.

In revealing that it had been giving top development priority to such a low-cost, easy-to-maintain craft over the last two-and-a-half years, the company said that it has constructed a full-scale mockup of its design to demonstrate maintenance provisions, armament loading techniques, and cockpit visibility features.

Three Congressmen said that they were "very impressed" upon viewing the mockup and hearing a rundown on Convair's COIN project at San Diego a week ago.

Rep. Bob Wilson, R-San Diego, member of the House Armed Services Committee; Rep. Ed Foreman, R-Odessa, Texas; and Rep. Durward J. Hall, R-Springfield, Mo., both members of the committee's special sub-committee on research and development, said that a $6 million appropriation has been approved for de-

(Continued on Page 2)

Two Idea Men Earn $1,000 in ES Payoffs

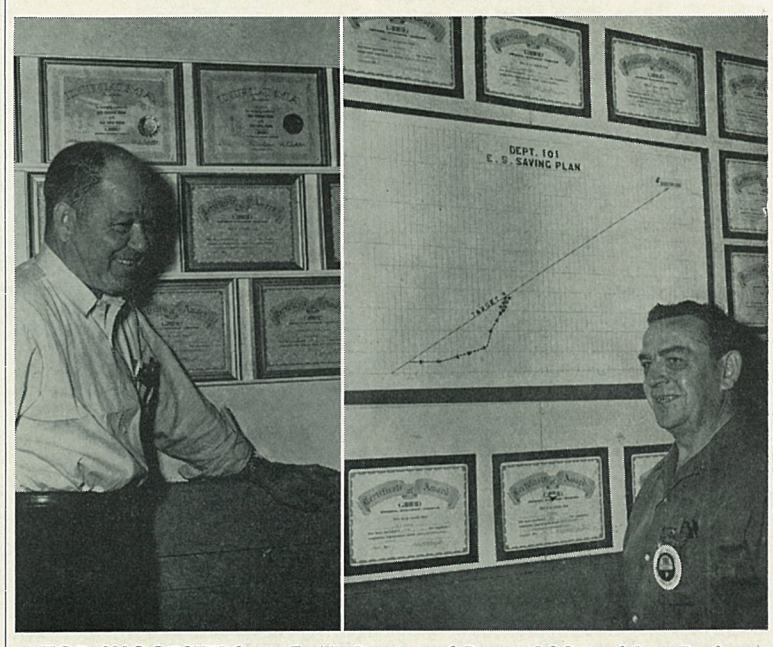
Two prolific idea men in GD/Convair's top savings production area (Depts. 101-102) have earned themselves nearly $1,000 in Employee Suggestions since the first of the year and have their sights on several hundred dollars more.

Dept. 101 men received over half of all ES money paid for the week of May 22. Leo Budzynski, Jack Hammer, C. V. Beeson, S. Boyd had five ESs installed. They received $190 of the $361 paid in awards for the week.

E. D. Robinson's Depts. 119-128 were not far behind. L. O. Smith, R. W. Talmage, P. A. Piraino, V. C. Breit turned in six for $118, over a third of the total.

F. M. "Red" Baxter, leadman over Dept. 102's paint processes, has had nine ESs installed. These already have saved the company nearly $7,000 and put an extra $697 into Baxter's pocket. He

(Continued on Page 2)



TOP SUGGESTERS — F. M. Baxter of Dept. 102 and Leo Budzynski of Dept. 101 have earned nearly $1,000 for their Employee Suggestions since the first of this year. Baxter's nine were worth nearly $700; Budzynski's, about $300.

Convair Expands C-141 Mfg. Area To Meet Peak Production in '65

C-141 empennage manufacturing area at GD/Convair now is being expanded as the entire program is geared toward a production speed-up this summer.

R. W. Miller, C-141 program manager, said the expansion is to meet peak production requirement of seven empennages per month early next year.

New assembly fixtures for an additional horizontal and a vertical stabilizer will be complete by July when production rate of the huge sections will be moved up to four a month.

Vertical stabilizer unit 18 and unit 21 of the horizontal stabilizer will be the first empennage components to occupy the new assembly fixtures, said N. P. Pearson, in charge of C-141 production.

Jack Benedict is assistant foreman for the horizontal stabilizer section and E. E. Miller in charge of vertical stabilizer assembly. Miller also said that all skin panel fixtures have been consolidated in the south area of Bldg. 2's C-141 production space.

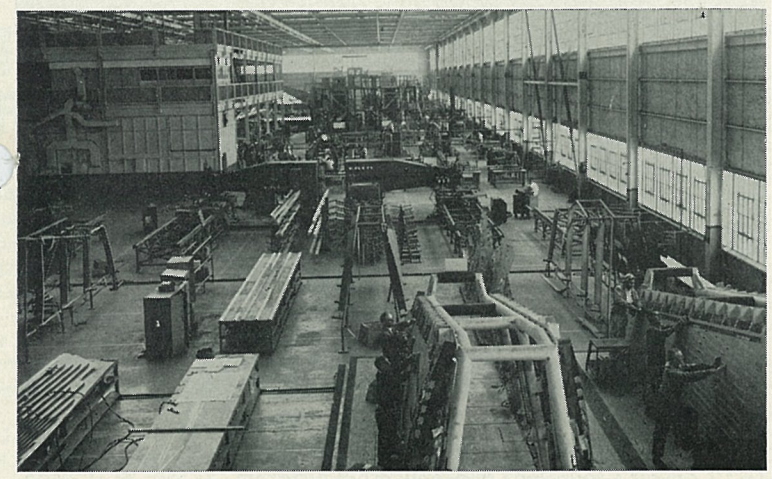
New templates are being prepared to put the automatic Erco riveting machines to work on C-141 panel sub-assemblies.

Tooling now is proofing out a method, developed by Convair's manufacturing research and development to meet Lockheed-Georgia Co. specifications, to apply wet prime in rivet holes as a corrosion preventive. The applicator automatically sprays unthinned green prime in each hole immediately after it has been drilled and countersunk.

In B. T. McMicken's elevator and rudder assembly area, one additional lefthand and one righthand elevator assembly fixture and one additional rudder fixture have been added, as well as a second forward and another aft bullet fixture.

Instead of a second fixture for elevator leading edge sub-assemblies, a complete family of tools

(Continued on Page 2)



EXPANDED LINE — Additional fixtures on C-141 empennage line at GD/Convair will speed up production rate to four a month by July and seven a month by next year. Manufacturing area is more than doubled.

GD/E Boosts Buying Of Bonds to 75 Pct.

GD/Electronics-SD and GD/Convair both hit well over the 70 per cent mark in final tabulation of payroll purchase of U. S. Savings Bonds at close of the annual drive last month.

GD/Electronics wound up with an impressive 75.6 per cent of employees buying bonds by payroll deduction.

GD/Convair pushed its participation to 70.3 per cent.

Convair Submits Design For 'Guerilla' Fighter

(Continued from Page 1)
velopment of a counter-insurgency type craft for use in spots such as Viet Nam and Laos.

The Convair COIN would be powered by twin turboprop engines and cruise at around 200 knots.

It could be deployed anywhere in the world. It has the range to fly the 2,200 nautical miles from California to Hawaii — longest overwater leg it would have to make for overseas deployment.

The Convair airplane is designed for use against soft targets, personnel, and light armored vehicles in the forward battle area. Its armament would include a variety of air-to-air and air-to-ground weapons such as rockets, bombs, and 20-mm cannon pods. Basic weapon would be four 7.62-mm machine guns supplied with ground-force ammunition.

Twin booms extend rearward from the Convair plane's engines. It has a twin vertical tail with high horizontal stabilizers. The fuselage, mounted on a square-cut wing, contains a large cargo bay—enabling the plane to carry a 6,000-lb. payload. Typical payloads that must be transported in limited-war situations are litter patients, fuel drums, infantry ordnance, even sacks of rice.

The fuselage also has been designed for attachment of a personnel pod that includes bail-out provisions for six fully-equipped paratroopers. The basic airplane crew consists of a pilot and observer. The pod also can be used to carry high-priority cargo for delivery or air drop to isolated combat units.

The Convair COIN effort has involved extensive wind tunnel and analog computer studies for verification of aircraft performance and handling qualities.

J. E. Fink has directed Convair's program during development and proposal stages.

Log Book Entries

Service Emblems

CONVAIR

Service emblems due during the period June 1 through June 15.

Thirty-year: Dept. 14-6, F. J. O'Connor; Dept. 401-1, C. F. Berger.

Twenty-year: Dept. 6-53, C. W. Alesch; Dept. 25-0, June W. Fennell.

Fifteen-year: Dept. 15-0, C. D. Foster; Dept. 27-6, L. I. Dunn; Dept. 91-1; Charlotte C. McLaughlin.

Ten-year: Dept. 6-23, R. J. Dunn, W. A. Harpster, D. N. Kahler; Dept. 27-6, Ann W. Walsh.

ELECTRONICS

Ten-year: Dept. 34-00, J. A. Majchrowicz.

Awards

CONVAIR

Employee Suggestion Awards approved for periods ending May 15 and May 22.

Dept. 6, G. B. LeClare, $10; T. J. Nilson, $10.

Dept. 15, S. L. Liflander, $125.

Dept. 101, C. V. Beeson, $10; S. Boyd, $10; L. Budzynski, $130.80; J. H. Hammer (three awards), $10, $10, $29.40.

Dept. 119, L. O. Smith Sr., $25; R. W. Talmage (three awards), $15, $22.86, $10.

Dept. 128, V. C. Breit, $30.50; P. A. Piraino (two awards), $10, $15.

Dept. 131, R. R. Atkinson and J. W. Burgreen, (joint award), $22.30 each.

Dept. 141, W. J. Gibson, $22.93.

Dept. 401, L. Farrington and F. A. Boyle, (joint award), $5 each.

Cost Improvement Proposals approved for the same periods.

Dept. 34, M. Formanek.

Dept. 42, J. H. Harper

Dept. 101, G. K. Cox.

Papers Presented

ELECTRONICS - SAN DIEGO

ATHAN—P. W. "Developing Reliable Human Resources," April issue of Personnel Journal.

BRENDING—D.O., requirements engineer. "A Proposed System for Magnetic Tape to Microfilm Conversion," American Ordnance Association 1964 Spring Meeting, Dallas, Texas, May 28.

FRAWLEY—N. E. "Adding Motion to Computer Output," published in March-April issue of Data Processing for Science/Engineering.

Rider-Driver

RIDE WANTED—One way or round trip, 7:30 a.m. to 4 p.m. from Front and Laurel to Plant 1. Grace Simpson, ext. 2068, home phone 232-3436.

Deaths

CONVAIR

CARLSON—Bjarne, Dept. 3-1. Died May 19. Survived by wife, Irene, two daughters, mother, three sisters, two brothers, four grandchildren.

CONKLIN—D. R., Dept. 6-61. Died May 24. Survived by wife, Harriet; son, David R.; and two brothers.

Four in Race For Club Prexy

Four candidates will battle it out for presidency in coming elections for the second club year of the GD/Electronics-SD Management Club.

T. E. Morris, Clay Murdock, Walter Orzechowski were nominated for the presidency by the nominating committee headed by Max Leeds, and A. E. Degler was nominated from the floor. Other nominees include:

First vice president—Lou DiVincenzo, Dan Macey, Cal Franklin.

Second vice president—Garrett McClung, George Oatman, Gerry Wetzel.

Secretary—Len Hanson, Bob Hayde, Mason Durrill.

Treasurer—Dennis Newlon, Ivan Kemper, Howard McCray. Max Leeds was nominated from the floor.

Board member—George McGinley, Keith Strowig, Don Pugh.

Members will ballot by mail. Results will be announced and new officers installed at the June meeting.

CONVAIR EXPANDING ITS C-141 MFG. AREA

(Continued from Page 1)
has been installed. McMicken said that the 16 assembly fixtures for 16 different sections can be used to build three or four of each section at a time. The multiple tools can turn out the leading edge parts much more cheaply and a good deal faster than several men working together on a single fixture.

Among other additions are numerous holding fixtures throughout the area to hold parts after they have been pulled from fixtures.

Convair is building 134 empennages for the huge Air Force jet cargo transport under a subcontract from Lockheed, prime contractor. The 15th unit was shipped from the San Diego plant to Marietta, Ga., the middle of May.

STAMP CLUB DROPS ITS JUNE MEETING

CRA Stamp Club has cancelled its June meeting, originally set for tomorrow night (June 4). No meetings will be held during the summer months, said Commissioner Jack Benedict.

Two Idea Men Earn $1,000 in ES Payoffs

(Continued from Page 1)
will collect another $235 as final payment on one in six months and has a couple of more ESs now in the works.

Leo Budzynski of Dept. 101 has received $271 for three approved ESs, has one pending approval this month, four under investigation, another submitted last week, and one "in his pocket." He says he has set himself a stint of turning in at least one good money-saving idea every week to help Dept. 101 reach its goal of $10,000 in ESs for the year.

Also, the method Budzynski worked out last year with H. M. Woodard, using shop-made plastic sheets in impact forming operations is providing much more economical than first estimated and has been reopened for further payoff. Budzynski and Woodard had collected $435 apiece on it by last December.

Practically all of Baxter's suggestions have dealt with more economical ways of processing parts, eliminating painting or masking operations wherever possible. Two resulted in running parts through the paint shop in bigger lot quantities and in C-141 ships sets to save money and time. He located a cheaper cleaner to substitute for a paint stripper, saving $4.50 a gallon, and is buying green prime in 50-gal. barrels instead of 5-gal. cans to save at least 25 cents a gallon.

Budzynski's last approved Employee Suggestion, paid off the last of May, culminated months of experimentation. He took on the task himself of finding an efficient method of dipping parts into the salt bath so they would not become distorted and need time-consuming hand straightening. He worked out a wire rack system to hold the parts straight while being dipped into the salt and quench tanks.

His two other ideas changed the design of the hydropress form block to eliminate hand forming time on C-141 parts. One was paid on the basis of 56 different tools reworked. Thirty others are being changed to raise his ES award.

G. K. Cox, Depts. 101 and 102 foreman, says, "We're really proud of the time-saving and money-saving methods worked out by these two men, as well as all others in our departments. Their main goal is to help the company be competitive."

Cox himself is no slouch when it comes to saving the company money. His last Cost Improvement Proposal, suggesting use of plastic bottom dies on C-141 parts, will save 2,520 manhours and $7,560 a year.

Telephone Numbers Slated For Change

Four hundred telephone extensions at GD/Convair Plant 1 will receive new numbers within the next week or so as number of telephone lines are reduced.

All extensions at Convair and GD/E, now bearing numbers over 2,199, will be assigned new numbers.

A new plant phone directory will be issued by the first of July to reflect the change in telephone numbers.

Reduction of the telephone master equipment is in line with the division's cost reduction objectives, said W. R. Bruce, director of operations. Savings are estimated at over $2,000 a month.

ARMY AWARDS STUDY CONTRACT

General Dynamics/Electronics-San Diego has received a $141,000 study contract from the U.S. Army Electronics Command at Fort Monmouth, N.J., as an outgrowth of its previous studies for the Army in developing high resolution techniques for surface radar systems.

NO. 1 APPRENTICE — Eugene Perkins, left, receives plaque as "Outstanding Apprentice of Year" at GD/Convair from O. W. Sweetland, tooling and methods superintendent. At right is runner-up Charles Anderson.

Convair's Eugene Perkins Earns Title of 'Outstanding Apprentice'

Eugene E. Perkins was named GD/Convair's "Outstanding Apprentice of the Year" for 1964 at ceremonies in mid-May.

Perkins, in his fourth year as tool and die apprentice, was chosen for quality and quantity of work, attitude on the job and at school, leadership potential. His school grade point average at San Diego City College is 3.16.

He won the San Diego General Apprenticeship Committee scholarhsip last year and was selected to speak on apprenticeship at the California Apprenticeship Council Career Conference early this year.

Runner-up was Charles J. Anderson, also in his last year of tool and die apprentice training. His grade point average for required courses is 3.37.

Perkins received a plaque and a $50 certificate for purchase of tools. Anderson was given a copy of the General Dynamics' history, "Dynamic America." Both were outfitted with slide rules, pens, and notebooks.

Members of the sub-committee of the GD/Convair joint Apprenticeship Committee, appointed by H. W. Rubottom, chairman, to conduct the contest and make the final selection were: L. W. Turner of educational services, responsible for GD/Convair's apprenticeship program; L. F. Kruse, GD/Electronics-SD general foreman of fabrication and assembly; L. K. Thornbrugh of GD/Convair Dept. 131; and K. D. Fawcett, San Diego Junior Colleges coordinator of technical education.

The apprenticeship program at Convair is administered by educational services. Training extends over four years on the job and at school.

Daughter Wins Community Title

Terri Torp, daughter of GD/Convair's Eric Torp, was crowned "Miss Clairemont Square" late last month. Terri, 17, received a trophy, corsage, and more than $100 in gifts. The talented miss is head cheerleader at Madison High, is expert at gymnastics, water skiing, and modern dance.

LATEST JOURNEYMEN — Four electronics apprentices receive journeymen's certificates in mid-May as most recent to complete GD/Convair's four-year apprenticeship program. At top, W. T. MacCarthy, manager of research laboratories, presents "diplomas" to Raymond Wyborny and John J. Smith. In lower shot, B. J. Campbell (far right), Astro dynamics lab, does honors for Chester Reinys and James Bridgman.

General Dynamics NEWS

Published by General Dynamics Corporation, One Rockefeller Plaza, New York 20, N. Y.; with editorial headquarters at 3302 Pacific Highway, San Diego 12, Calif., P.O. Box 1950, telephone 296-6611, ext. 1071. Logan Jenkins, editor-in-chief.

Astronautics Editorial Offices, Bldg. 8, GD/Astronautics, Mail Zone 130-01, P.O. Box 1128, San Diego 12, Calif. Telephone 277-8900, ext. 3322. Staff: Bryan Weickersheimmer, editor; Willard Harwood.

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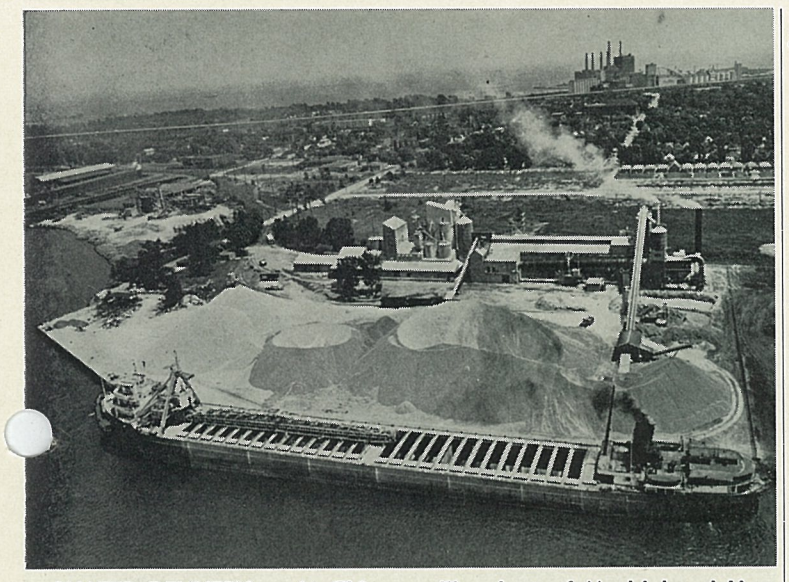
Affiliated editions of General Dynamics NEWS are published in Rochester, N. Y., covering GD/Electronics and Stromberg-Carlson, editorial offices, 100 Carlson Road, HUbbard 2-2200, ext. 2555. Fred E. Voss, editor; and at Groton, Conn., covering GD/Electric Boat, editorial offices at Groton, HIlltop 5-4321, ext. 300 and 513, Joseph Tracey, editor.



WATER DELIVERY — At Chicago, Ill., plant of Marblehead Lime Co., General Dynamics subsidiary, lake carrier unloads limestone for processing. New lime products plant will be built by Marblehead at Detroit, scheduled for completion early next year.

Marblehead Lime Co. to Build New Process Plant at Detroit

Marblehead Lime Co., a subsidiary of General Dynamics Corporation, will build a new lime products plant in Detroit, Mich., Lester Crown, president of Marblehead Lime, announced last month.

Construction of the new plant, located on the River Rouge, has started. It is scheduled for completion in early 1965.

The plant is engineered and designed for 700,000 tons annual capacity, but only one half of this capacity is being installed during the first phase of plant construction.

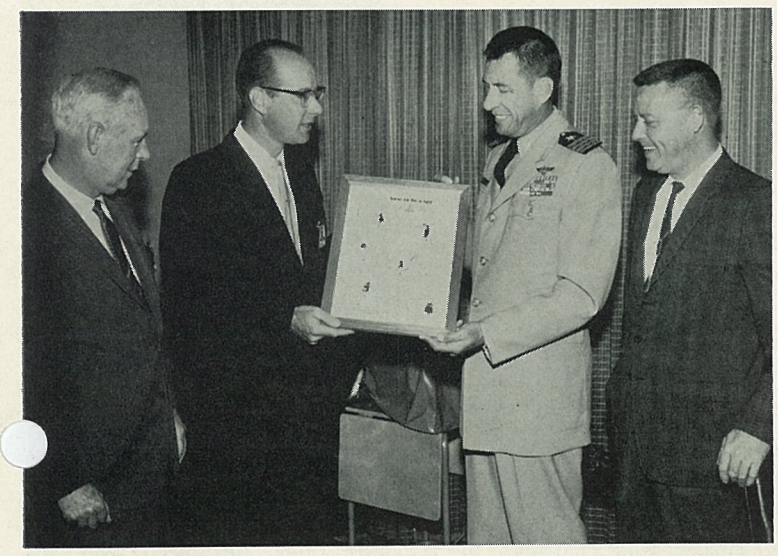
Chief products of the new plant will be high calcium lime produced specifically for use as a flux in steel making, particularly in the growing utilization of oxygen furnaces, and for use in chemical production and large-scale water treatment.

High calcium limestone to be processed will be shipped directly from upper Michigan to the new River Rouge plant in large lake vessels. Finished lime products will be shipped to customers by rail or truck from the plant.

The new Detroit facility will supplement existing Marblehead plants in South Chicago, Thornton and Quincy, Illinois; Hannibal, Missouri; and Tooele, Utah.

Through its range of specialty lime products, Marblehead serves not only the steel, chemical and water treatment industries, but also a variety of other industries including agriculture, floor coverings, tanning, paper and board, glass, paint, textiles and construction.

Marblehead was originally organized in 1872, with its first plant in Chicago, where it is still headquartered. Today it operates both rotary and shift kilns and owns and operates its own quarries and mines which contain some of the world's finest deposits of high calcium and dolomitic limestone. Marblehead is one of the world's largest producers of dead-burned dolomite, a refractory product used by the steel industry, and high calcium and dolomitic limes.



POPULAR IDEA — A framed copy of "How to be a spy in six easy lessons" (GD/NEWS, March 11, 1964) was presented recently to Capt. E. J. Pawka, BUWEPSREP at Pomona, by T. R. Worthy, director of industrial relations. Full-page security cartoon was conceived in support of GD/Pomona's spring security checkup and carried in General Dynamics NEWS in all editions. It since has been widely reproduced in both military and industrial security programs. Looking on are R. S. Benton, manager of GD/Pomona industrial security, and P. W. Jolin, BUWEPSREP security director.

Twelve Crewmen Decorated For B-58 Flights to Alaska

Twelve B-58 crewmen of the 43rd Bomb Wing at Carswell AFB have been awarded the Air Medal for their part in low-level photographic missions over the Alaskan earthquake areas in March.

Awards were presented during a recent Strategic Air Command commander's conference at SAC headquarters, Offutt AFB, Neb.

Honored were: Lt. Col. Andrew G. Martin Jr.; Majs. John C. Kennon, Cosimo B. Mallozzi and Richard D. Snyder; Capts. Joseph R. Gerrish, Isaac M. Glass, Robert J. Hill, Richard L. Labonte, Robert T. Shaw, Donald E. Winters and Charles R. Wright, and Lt. Richard F. Arens.

The Air Medal is awarded persons in recognition of acts of merit or sustained operational activities while participating in aerial flights.

Gen. Thomas S. Power, SAC commander, cited the photographic coverage as "an outstanding example of SAC professional performance."

RUNNALLS ATTENDS MONTREAL FORUM

R. L. Runnalls of GD/Convair represented the division at the International Air Cargo Forum in Montreal, Canada, last week.

Mobility

Armstrong To New York

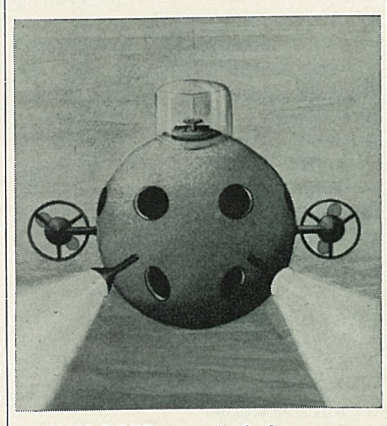
(Following are recent personnel transfers among General Dynamics divisions. In parentheses are dates when individuals joined the company.)

Gene Armstrong (1954) from GD/Astronautics to Corporate Office, staff of **E. H. Heinemann.**

John T. Greacen (1939) from GD/Convair to GD/Fort Worth management and technical services; **Harold C. Leppart** (1950) from Convair to Fort Worth material projects; **Cecil F. Johnson** (1954) from Astro (Abilene) to Fort Worth management and technical services.

Wilbur A. Huot (1950) from GD/Electronics-San Diego to Fort Worth inspection-production; **Herbert C. Van Trease** (1950) from Astro (Altus) to Fort Worth manufacturing control; **James E. McInnis** (1941) from Convair to Fort Worth sanitation; **Jerome T. Crane** (1960) from Astro to Pomona engineering.

J. P. Sandlin (1953) from Convair to Fort Worth manufacturing research; **Edward B. Kellogg** (1947) from Astro to Fort Worth F-111 program control; **Octavio J. de los Cobos** (1963) from Astro to Pomona engineering; **Robert W. Tidball** (1941) from Convair to Fort Worth procurement planning; **Charles H. Peterman** (1957) from Astro to Fort Worth management and technical services.



EXPLORER — Artist's conception shows bow view of new two-man submarine launched May 28 by Electric Boat. It will be used for archeological search.

Explorer

Sub to Seek 'Lost' Hulks

The Asherah, a two-man submarine designed for archeological research, was launched May 28 at Electric Boat division, Groton, Conn.

The division's Groton shipyard, presently building nuclear submarines for the Navy, designed and constructed the Asherah for the University of Pennsylvania Museum. It will be used this summer by an expedition seeking the hulks of ancient vessels in the Aegean Sea off the Turkish coast.

Named for the Phoenician goddess of the sea, the Asherah is 16 feet long, displaces about 7,000 pounds, and will operate at depths up to 600 feet.

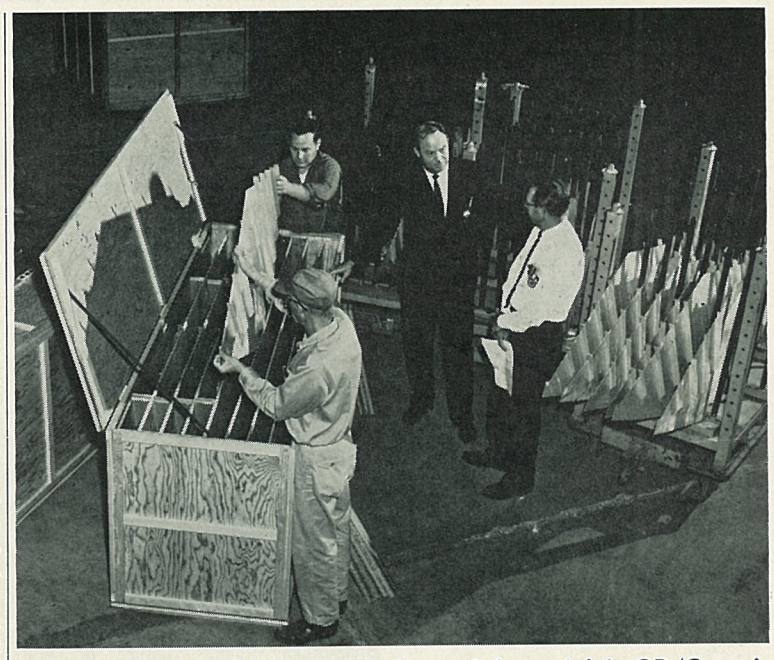
The vessel has six viewing ports and is driven by a pair of 2-horsepower electric motors. Each can be pivoted 360 degrees, enabling it to hover underwater in helicopter fashion.

The Asherah is designed to operate at speeds up to 4 knots and will be able to remain submerged for 10 hours.

GD/FW Trio Elected By Honor Society

Three GD/Fort Worth employees have been elected to office in Alpha Sigma Lambda, evening college honor society.

They are: Al Watson, quality control research engineer, president; Art Gilligan, F-111 configuration status accounting, vice president; and Gene Jackson, B-58 subsystem manual preparation, treasurer.



SOLID PACK — J. J. Janssen (second from right), GD/Convair packaging specialist, explains new reusable container designed for C-141 doublers to K. M. MacLeod of inspection. Packing the parts for their trip to Los Angeles are Art Hanson and Bob Nickerson.

Unusual Boxes 'Stretch' to Size As They Transport C-141 Parts

Unique boxes designed by GD/Convair packaging specialists will be on the road as much as the proverbial traveling salesman during the next year as they carry odd-shaped C-141 parts back and forth between San Diego and Los Angeles.

J. J. Janssen of Dept. 14-4 explained that design of this particular kind of reusable container was especially challenging since it had to fit two different configurations. The parts are twice as wide on the return trip as they are when they leave the plant.

C-141 aluminum doublers, 30 inches high and 60 inches long, are sent from the San Diego plant to a Los Angeles firm for shot peening, a cold-working process to prevent stress corrosion. Parts are straight-line and 2 inches wide when they leave Convair. When they are sent back they are hardened and peened into a 4-inch-wide contour.

Janssen said that the solution was a container with space allowed for the widest thickness and braces to adjust to the different shapes. Parts rest on a frame at the bottom of the box's carpeted floor and are held solid by wedge blocks slipped in at an angle to lock them into place.

Four boxes hold eight parts and two were built for four so that a total of 40 doublers can be sent at one time. First shipment of 33 went out the last of April. Regular shipments will be made at least once a month.

Frank Field, chief of traffic and stores, said that many man-hours and hundreds of dollars will be saved by using permanent containers built to last the life of the program. In addition, there is little risk of damage to parts in transit with the well-braced boxes.

880s Continue Top Reliability

R. L. Runnalls and D. R. Maxion, GD/Convair's team participating in Trans World Airlines' annual survey of its coast-to-coast network, returned last month with admiration of TWA's smooth and expanding operations.

Runnalls, airline performance engineer, was making his fourth TWA survey trip as he flew over 18,000 air miles from April 28 to May 11 observing flight operations from a cockpit jump seat. He rode on half a dozen different Convair 880 jet transports and made stops at 11 cities on his two cross-country round trips (and many side trips) between Los Angeles and New York.

Maxion, Convair customer service, concentrated on check of ground facilities and maintenance practices at New York, Chicago, Los Angeles, San Francisco and other airports.

"We were glad to note continued reliability of Convair 880s in service," said Runnalls. "But, even more, we were impressed with TWA's excellent passenger service and dependable scheduling as well as skill of flight crews."

DREADNOUGHT—New roller-tracked vehicle called "Canadair-Fisher" is under evaluation at Canadair with eye to commercial market. It is designed for rough going in wilderness. Rollers attached to endless belts, give "Fisher" handling qualities similar to conventional tracked vehicles.

Mgt. Club Plans Mountain Picnic

Picnic time is here for GD/Convair Management Club families!

Pine Crest, CRA's mountain area near Julian, will be turned over to the Management Club on June 20. Hours are from 11 a.m. to 5 p.m.

Tickets to the annual club get-together went on sale this week at $1 per family.

Games are planned for grown-ups and the youngsters during the afternoon. The club will serve beverages and ice cream without charge, but families must provide their own food, cooking and eating equipment. Fire pits are available on the grounds and there are plenty of picnic tables and benches.

Manufacturing departments of W. D. Reed are sponsoring with Frank Blair spearheading arrangements.

Engineering Support Contract Awarded To Convair by SAAMA

Third "on call" contract for engineering services in support of the T-29, C-131, F-102, F-106 has been awarded GD/Convair by the Air Force's SAAMA headquarters.

The contracted period extends from April 8 through March of 1965. First contract of this time and material type of service was received in early 1962.

The current contract includes, for the first time, a clause requiring maintenance of 16 "hard-core" or basic engineering specialties in-house. These include such specialized engineering functions as aerodynamics, dynamics, structures, stress, weights.

Engineering services calls are coordinated and administered by the division's service parts department under John Doig, manager.

Teams to Vie In Gun Shoot

General Dynamics teams are planning to compete in the four divisions of the coming Industrial Recreation Council Gun Shoot.

Pistol competition will be June 14 at the San Diego Pistol Range, Federal and Home Ave. CRA Pistol Club commissioner, Joe Williamson, urges all GD teams to turn out for the 9 a.m. shooting contest. Williamson is rangemaster.

The same day trap and skeet events are scheduled for 10 a.m. at Gillespie Field Range with Jack Swank, CRA Gun Club commissioner, in charge. Any 12-ga. or smaller shotgun may be used for both trap and skeet. Both events will be regulation 50 bird shoots.

Rifle match, directed by Bob Andrews of Astro, will be at 9 a.m. the following Sunday (June 21) at Gillespie Field.

Convair Mgt. Club Scholars Win Honor

Maryann (Milis) Zounes and Dennis Bunde, holders of GD/Convair Management Club scholarships, will graduate from San Diego State College with honors this month.

Maryann, daughter of S. R. Milis, Convair engineer, and Dennis, son of Philip C. Bunde, also of Dept. 6 at time of the awards, were 1960 winners of the club's scholarships.

Margery B. Warmer, associate dean of students at S.D. State, writes the Convair Management Club: "We know that through your investment in education, you are contributing to the development of our community and nation, as well as strengthening the scholarships program at San Diego State."

CONVAIR DAUGHTER HEADS FOR DENMARK

GD/Convair daughter Laura Ross will hardly catch her breath from graduation whirl next week before she settles in behind a desk in Denmark as an exchange employee.

Laura, 22, daughter of Mattie C. Ross, chief telephone operator at Convair, receives her college diploma in business administration from UCLA next Thursday (June 11) and leaves two days later on first leg of a flight to Horsens, Denmark, under a world-wide program for exchange of economics and commerce students as working trainees in business firms.

Laura Ross

Known as AIESEC, the "Association Internationale des Etudiants en Sciences et Commerciales" was founded in 1948 by students in seven European countries. Now, 38 countries and 3,900 students all over the world are participating.

This year 350 American students from 45 colleges will be going to overseas firms for on-the-job training in sales and management. Laura was one of the 10 chosen from UCLA.

Her job will be in the offices of Jydsk Ilt & Acetylenfabrik Ltd., manufacturers of oxygen and acetylene equipment. She will spend nearly three months with the Danish firm and receive a weekly wage equivalent to $70 or $80.

Laura will barely wind up her overseas assignment before jetting back to California in September to report to her permanent position already lined up in Los Angeles County's Bureau of Public Assistance.

MARKSMEN COMPETE FOR SILVER PRIZES

Norm Kline of El Centro bested the field of marksmen in CRA Gun Club's registered ATA trapshoot May 17 to score 97 out of a possible 100 in the 16-yd. Class A division.

Nearly 100 shooters made up 20 squads for practice when the traps opened at 8:30 a.m. Of these, 65 went on to compete for the silver service prizes at stake in the ATA shoot.

Bill Miller of Brawley shot a 97 to win the Class B division.

George Harbaugh of Astro won the Class C match on the flip of a coin after he and Jack Smalley tied with 90s.

Class D was won by Joe Ellis of National City in a 23-20 shoot-off with H. Y. Carter of Anaheim. Ellis and Carter had tied with 91s.

Twelve-year-old Jeff Johnson of Chula Vista, shooting as a junior entry, came close to taking second place, missing it only after tying scores twice with Jack Mann of Lemon Grove. They both shot 87, went on to tie again in first round of the shoot-off. Mann shot a 20 to Jeff's 15 in the second round.

High lady was Lois Smith of San Diego with an 85.

Ellis Rhodes of San Diego won the doubles with 86.

Con-Trib Reports On Current Gifts

A contribution of $500 from GD/Convair Employees' Con-Trib-Club will go toward cost of enclosing the swimming pool of the San Diego County Association for Retarded Children's East County Chapter.

Enclosure of the pool will make it an all year round therapy aid for handicapped persons in the Heartland area.

Campership donations approved at yesterday's Con-Trib Committee meeting were $500 each to Girl Scouts, Boy Scouts, YMCA, and $300 to the Salvation Army.

Society to Hear Value Graduates

Graduates of the first college course in value engineering in the San Diego area will present case histories of their project studies at the June 16 meeting of SD Chapter, Society of American Value Engineers.

Many of the students taking the 18-session course at SD State College are General Dynamics employees. These chose actual division projects to value analyze.

During the Tuesday evening program a team from GD/Electronics-SD will explain its workshop project, "Camera Magazine Assembly," and two teams from GD/Astro will talk on their projects, "Fail Safe Tension Bolt" and "Hydraulic Accumulator."

George Bartolomei of GD/Astro was instructor of the course with other value engineering specialists from General Dynamics divisions appearing as guest speakers.

Reservations for the 6:30 dinner meeting in Convair's main cafeteria may be made until June 12 through W. D. Garrett, GD/E Plant 1, ext. 1988.

Safety Engineers Chapter Chartered

Several General Dynamics safety specialists hold top offices in the newly-chartered San Diego Chapter of the American Society of Safety Engineers.

B. G. Bonner of General Atomic is president of the new chapter, formerly known as the San Diego Society of Safety Engineers.

S. W. Rowland, also of General Atomic, is secretary. J. W. Garrison of GD/Astro and M. C. Val Dez of GD/Convair serve on the executive committee.

Other GD men listed as members are Jim Cooper, Dan Morgan, R. P. Schultz, L. D. Simmons and L. W. Bloomquist of Astro, and Y. D. Naliboff of General Atomic.

Charter night was held last Thursday (May 28) at Catamaran Hotel on Mission Bay.

Palmdale 'Alumni' Planning Reunion

Former "desert rats" from Convair's Palmdale facility during F-102/106 checkout days are planning a big get-together this summer if enough want to join in the fun.

General Dynamics people who are eligible to attend the Palmdale Reunion are urged to call Joan Poulton, home phone 443-2276, between the hours of 10 a.m. and 8 p.m., immediately.

A date will be set and location announced as soon as the number of GD attendees is established.

Electronics Wives To See Style Show

GD/Electronics Wives' Club will see a fashion show by Haggerty's of Mission Valley at their next luncheon meeting Thursday (June 11).

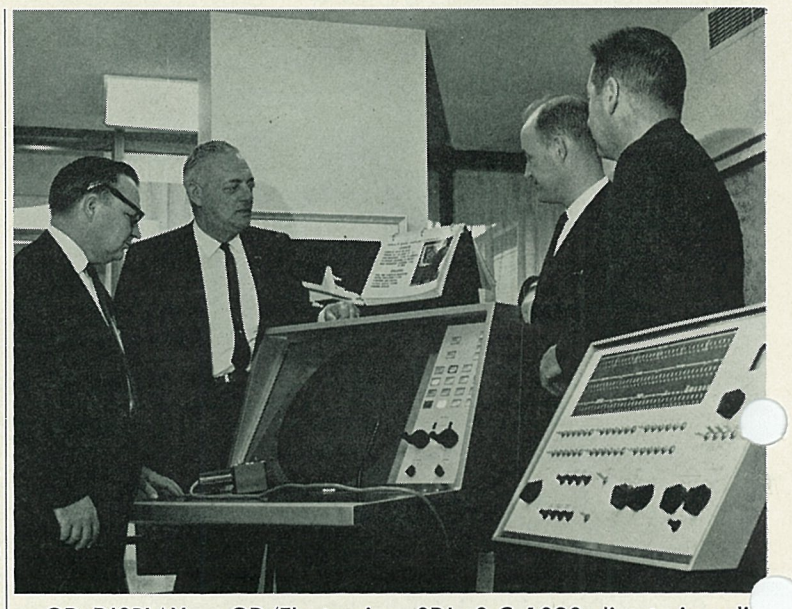
The social gathering will be at Valley Ho Restaurant with cocktail hour at 11:30 a.m. and luncheon at 12:30 o'clock. Price, including tax and tip, is $2.50.

Reservations should be called in by the first of next week to the co-hostesses, Mrs. Betty Strowig, 274-0126, or Mrs. Helen Ledbetter, 222-5064.

Standards Director To Address Society

W. P. Moore, director of gage and standards division of the Bureau of Naval Weapons Representative's office in Pomona, will speak at Town and Country Hotel June 8, sponsored by the San Diego Section, American Society for Quality Control.

Astro's M. R. Seldon, assistant to the director of reliability control, will moderate. Tickets are available through ASQC boosters.



GD DISPLAY — GD/Electronics - SD's S-C 1090 direct view display console exhibited at Spring Joint Computer Conference, in April, and Armed Forces Communications and Electronics Association in Washington, D.C., May 18-22 is viewed by (from left) M. J. Baxter, GD/Fort Worth; S. M. Chesler, GD/E - SD; C. D. England of Washington Office; and C. D. McCauley, also GD/FW.

Mexico Travelers Will View Slides

Prospective General Dynamics travelers to Mexico will have a chance to view the sights they will be seeing at a special showing next Monday (June 8), 7 p.m., in the Convair executive dining room, Pacific Hwy.

Colored slides of last summer's trip will give a good idea of the interesting sights, luxurious accommodations, and other highlights of the tour, said Jim Hardison of GD/Convair. Hardison will conduct a similar trip for General Dynamics people from Aug. 21 to Sept. 6.

Detailed itineraries may be picked up at employee services outlets at Astro, Convair, GD/Electronics.

John Phair Leads In Abalone Contest

Young John Phair, son of Art Kellogg, GD/Convair Dept. 6, won a recent ARA Astro Divers abalone dive, collecting the four largest "abs" found by any of his 27 competitors.

Second place honors in the contest went to Howard Gutzmer, with Bob Nicholas placing third. In addition, Phair set a new Astro Divers record with an underwater swim of 316 feet.

Next club event will be a spearfishing contest, 9 a.m., June 14 at Del Mar.

Turner and Croft Attend Conference

Wayne Turner of Convair educational services, Jack Croft of GD/Astronautics educational services, and Fred DeGreef of Convair Dept. 401 attended the bi-annual California Conference on Apprenticeship in San Francisco May 20-22.

Turner was chairman of the panel, "Journeyman Training," and participated as a panel member in the discussion on "Machinists' Workshop." Croft was a member of the "Journeyman Training" panel.

Power Squadron Plans Boat Classes

General Dynamics boat owners in the San Diego area are invited to a summer class in small boat handling opening June 18, 7:30 p.m. at the Naval Reserve Training Center, Harbor Drive and Lowell St.

Sponsored by San Diego Power Squadron, sessions will include safety afloat, seamanship, small boat handling, rules of the road, etc. There is no tuition charge. Information is available by calling 222-1183 or 488-2537.

Salvage Schedule

Astro salvage yard at the Kearny Mesa plant will be open Saturday (June 13) for its monthly sales morning for General Dynamics shoppers.

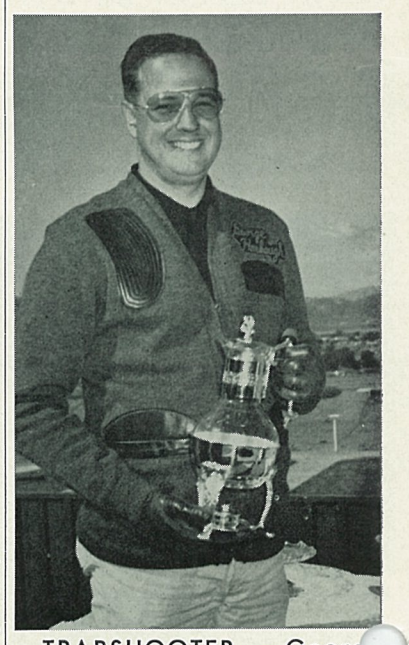
Convair yard at Plant 1 will be open June 6 and 20 from 8 a.m. until noon.

Divisions to Share Safety Experience

Issue No. 1 of "Safety Idea Exchange" was distributed to all divisions of General Dynamics last month by Corporate industrial relations.

Aimed at assisting divisions in preventing accidents through the sharing of safety information, the single page, 8½ by 11 publication will be issued bi-weekly through safety offices to supervisors and for bulletin board posting where applicable. The No. 1 issue involves description of an accident in which a grinder operator suffered a severe thumb injury through improper procedure.

The June 1 issue will deal with an accident involving gloves and moving machinery.



TRAPSHOOTER — George Harbaugh of GD/Astro holds silver service trophy won at May 17 ATA trapshoot sponsored by Gun Club. Harbaugh won 16-yd. Class C after flip to break tie.

Tickets For Skating Sessions Available

Half-price tickets good for any skating session at Mission Valley Ice Plaza now are available to General Dynamics people at all employee services outlets.

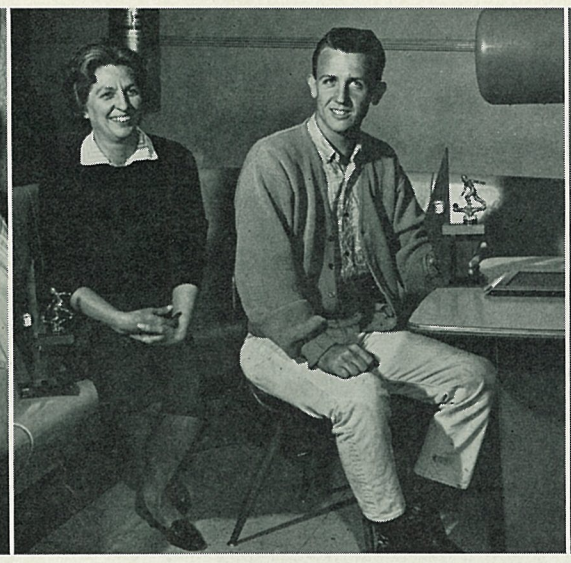
GD skaters get the half-price rate automatically, without the discount tickets, upon presentation of their membership card at the Thursday night, 6:30 p.m., sessions, reminds ARA Commissioner Bud Davies. Free instruction is given at this time.

Club memberships for the next 12-month period, beginning in July, may be obtained at the GD sessions starting June 11.

The summer season will open with a free skating party Thursday (June 25).

BUNNIGER HEADS FISHING CLUB

Walt Bunniger is new president of ARA Fishing Club, heading officers elected last month.



PLANT CHAMPS — Top bowlers in CRA's annual plant championship tourney are (at far left) Davidson Bros. fivesome, holder of men's team title: from left, Co-commissioners Jim Hayman and Mike Brooks awarding trophies to John Adams, Don Stewart, Charles Swearingen, Alex Kuhnel, Carl Johnson. Singles winners Ora Williams and Charles Chance are shown in center photo. At far right are men's doubles champs, John Lundgren and Hugh Wilson, and mixed doubles, Billie and Bert Lee.

Sports & Recreation

CRA Calendar

(Convair Recreation Association has some 30 activities in operation for Convair and Electronics people. For information call CRA Headquarters, ext. 1245.)

★ ★ ★

AEROMODELERS — Flying sessions Saturday and Sunday mornings, 8 a.m. to 1 p.m., Clairemont Mesa Flying Site.

CAMERA CLUB — Joint CRA-ARA meeting June 7, 7:30 p.m., Photo Arts Bldg., Balboa Park.

FENCING—Workouts and instruction each Friday night, 7-10 p.m., YWCA, 10th and C Sts.

FISHING — Regular meeting June 16, Gillespie Field Clubhouse. Potluck at 6:30 p.m., meeting at 7:30.

GARDEN CLUB—Joint CRA-ARA meeting June 3, 7:30 p.m., Floral Association Bldg., Balboa Park.

GOLF — Entries open until June 5 for CRA tourney June 13-14, Carlton Oaks course. Call ext. 1705, Plant 1.

GUN CLUB—CRA club shoot for Convair, GD/E, associate members only, June 7, Gillespie Field Range. IRC trap and skeet shoots, 10 a.m., June 14.

ICE SKATING—Thursday ice skating sessions, Mission Valley, Ice Plaza, 6:30-8 p.m.

MODEL RAILROAD — Work nights, Fridays, 7:30 p.m.; open sessions, Sundays, 1-4:30 p.m., House of Charm, Balboa Park.

MOVIES—Reduced prices for General Dynamics people at State Theater, Euclid and El Cajon Blvd. General admission: adults, 75c; children, 25c.

PISTOL CLUB — IRC pistol match June 14, 9 a.m., San Diego Police Pistol Range, Federal Blvd. and Home Ave.

RADIO CLUB — Next meeting June 11, 8 p.m., Harbor Drive club headquarters.

RIDING CLUB—Meeting 7:30 p.m., June 4, Gillespie Field Clubhouse.

ROAD RUNNERS—Next outing June 19-21, Oak Grove Campground.

ROCKHOUNDS — Regular meeting June 11, 7:30 p.m., Gillespie Field Clubhouse. Lapidary shop open Wednesday evenings.

ROLLER SKATING — Free skate night June 15 at Skateland, Front and G Sts. Tickets at employee service outlets.

SNOW SKI CLUB — Awards dinner-dance, Stardust Hotel, June 6.

SOFTBALL — First league games June 4 in "slow pitch" plant tourney.

SPANISH — First class in CRA-ARA free 12-week Spanish course June 8, 7-9 p.m., Convair executive dining room, Pacific Hwy.

SPORTS CAR CLUB—Meeting tonight (June 3), 7:30 p.m., Convair cafeteria, Pacific Hwy.

STAMP CLUB — Meetings discontinued until September.

SWIMMING—Next free family swim night June 20 Mission Beach Plunge, 7-9 p.m.

WATER SKI CLUB — Skiing weekends on Mission Bay. Call Gene Sevigny, ext. 1778, Plant 1.

Still Time to Sign For Dodgers Trip

A few seats still are available on the CRA bus trip June 13 to the L.A. Dodgers vs. St. Louis Cardinals game for Convair and GD/E fathers, sons or daughters.

Bus fare and game price is $5.25 each for the all-day excursion. Tickets may be purchased at Convair employee services. Pete Beyrer of CRA headquarters urges anyone wishing to go, to sign at once.

Ticket Drawing Set For June 19

Free tickets to Padres home games played the last two weeks in June and all of July will be given to winners in the CRA drawing June 19.

All entries in the Baseball Drawing box at Convair employee services counter on that date will be eligible.

Scheduled games are: June 22, 23, 24, 25 vs. Little Rock; June 26, 27, 28 (double-header) vs. Indianapolis; July 6 through 12 (double-header) vs. Hawaii; July 14, 15, 16 vs. Spokane; July 17, 18, 19 (double-header) vs. Portland; July 21, 22, 23 vs. Tacoma.

Entries must contain the following information or they will be disqualified for the drawing: name, clock number, shift, department number, location, plant phone extension.

Only one entry is allowed each person.

They may be dropped in the box in person, or sent by interplant mail to Baseball Drawing, zone 3-20.

Bow Club Members Take Three Firsts

CRA Archery Club members hit their marks to take three firsts in the King Arthur Shoot held May 3 at the Balboa Park Field Archery Range.

Harry Ross placed first in the men's barebow champ class. Bob Lorch of Dept. 401-4 won the men's free-style class, while Peggy Ross, daughter of Harry, topped the girls' cub division.

ALL EVENTS — Holding top lady's honors for second year is Billie Lee. John Overdeer won trophy for men's overall performance.

Skiers' Award Dance Slated

Winners of skiing events at the annual Convair Ski Club Races held last month at Mammoth Mt. will receive their trophies at the awards banquet and dance this coming Saturday (June 6), said Commissioner Joe Harris.

All intending to attend the dinner-dance are asked to call Harris at his home phone, 284-0278. Cost is $4.75 each.

Stardust Hotel will be the location of the annual affair with social hour from 7-8 p.m., preceding the buffet dinner.

San Diego Ski Club won the champion race in the May 10 competition.

Bob Dean of the San Diego club took first in the men's open race. Chris Callton was second and Fred Porchet of Don Diego group, third.

In the women's event Ann Culver of SD Ski Club was first; Carmen Mixon, Don Diego, second; and Helen Navoy of Convair Ski Club, third.

Commissioner Harris took third place in the San Diego Ski Club's open in April at Mammoth. Dean was first and Jim Kelly Jr., also of the San Diego group, second.

Runners, Travelers Go to Pine Crest

Convair Road Runners and Astro Travelers joined forces for a weekend campout May 15-17 at CRA's Pine Crest.

Thirty-one units and 83 people took part in the planned activities, including a Saturday potluck, campfire sing, and showing of slides of past Road Runner activities and outings. Shots were taken by Regina Wawrzynski and Pete Peterson.

Several of the party drove into Julian to see the annual Wild Flower Show displays.

Ed Wawrzynski and Bob Kramer will lead the next outing to Oak Grove Campground over the weekend of June 19-21. Water and rest rooms are available at the camp site, 15 miles northwest of Warner Hot Springs.

Regular monthly business meeting will be June 18 at Gillespie Field Clubhouse.

Billie Jean Lee Repeats All Events Bowling Win

Billie Jean Lee not only did a repeat performance in winning the woman's bowling title for two years in a row in CRA plant bowling championships but increased her average by 40 pins in the last year, and is still going.

Billie's total score for the 23rd keg tourney, which drew a field of some 200 Convair and GD/E bowlers, was 1,875.

She and her husband, Bert, won mixed doubles with 1,302 and were part of the GM Mixers team which stood in top spot for mixed team event. Team score was 3,111.

Men's all-events winner was John Overdeer with an accumulated score of 1,944. Lee was second with 1,935.

John Lundgren and Hugh Wilson of GD/E took the men's doubles event with 1,303. In second spot were Bill Kinney and Tony Zullo with 1,275.

Ora Williams won trophy for women's singles with 611. Gloria Schneider stood just 10 pins behind for second.

Chuck Chance was first in men's singles competition. His score of 669 was just two points ahead of second-place Jack Plumley.

Top men's team was Davidson Bros. with 3,118.

CRA summer league bowling is in second week of action with six leagues competing at local alleys.

A Mixed Fivesome rolls Tuesdays at University Lanes; Mixed Trio on Wednesdays at Pacific Recreation. A GD/E league bowls Thursdays at Pacific Rec. The same night an all-Convair league bowls at Frontier Lanes and a Convair Foursome at Victory Lanes.

On Friday evenings a Mixed Scratch Fivesome rolls at Pacific Rec.

League will end the middle of August.

Sports Drivers Plan Tenth Anniversary

Plans for tenth anniversary observance will be laid at tonight's (June 3) meeting of the CRA Sports Car Club. Members will meet at 7:30 p.m. in the Convair executive dining room, Pacific Hwy.

H. W. Callihan of Dept. 6, in charge of arrangements for the birthday party, will outline tentative plans for the consideration of members.

Also on tonight's program will be a talk on evolution of the Grand Prix car by G. W. Morgan, also Dept. 6.

Two films on sports car racing will be shown.

All interested General Dynamics people are invited to attend.

Disneyland Issuing New Member Cards

New membership cards for Disneyland's Magic Kingdom Club now are being issued at Convair employee services to interested GD people at Plant 1.

Free family membership cards are good for a year, starting June 1.

They allow special discount rates at Disneyland park, Disneyland Hotel, golf course, and other values not open to the general public. Holders also are eligible for Family of the Month drawing and awards.

CRA Slow Pitch League Starts

First games in CRA's "slow pitch" softball tournament will be held tomorrow night (June 4) on two San Diego recreation fields.

Hi-Lows will meet Pre-War Personnel at 8 p.m. at Central Playground, 41st and University.

Convair Material will play the Beasts at 6:45 p.m. and GD/E Material will meet Fire Dept. boys at 8:20 p.m. on the Linda Vista Playground diamond.

GD/E Operations draws a bye.

The next week (June 11) GD/E Operations has its first game against the Beasts at Central. Hi-Lows vs. Fire Dept. and Convair Material vs. GD/E Material tilts will be at Linda Vista.

Three games will be held each Thursday evening on the two fields, said Pete Beyrer of CRA. Season extends into September with first half ending July 16. Play-off games will be Sept. 10, 17, 24 with winners of first half playing winners of second half in best two-of-three series for the championship.

Halfacre, Williamson Win Pistol Events

Jim Halfacre (Dept. 140) and Commissioner Joe Williamson (Dept. 401) divided honors at the May 10 CRA Pistol Club matches.

Halfacre shot a 293 to win the master division of the .22-cal. Police Course event. Williamson stood second in the master with 259 and went on to top the Center Fire Short National with 265.

W. G. Walker (Dept. 6) was first in the Police Course expert division with 294. Dale Young (Dept. 131) was second with 289.

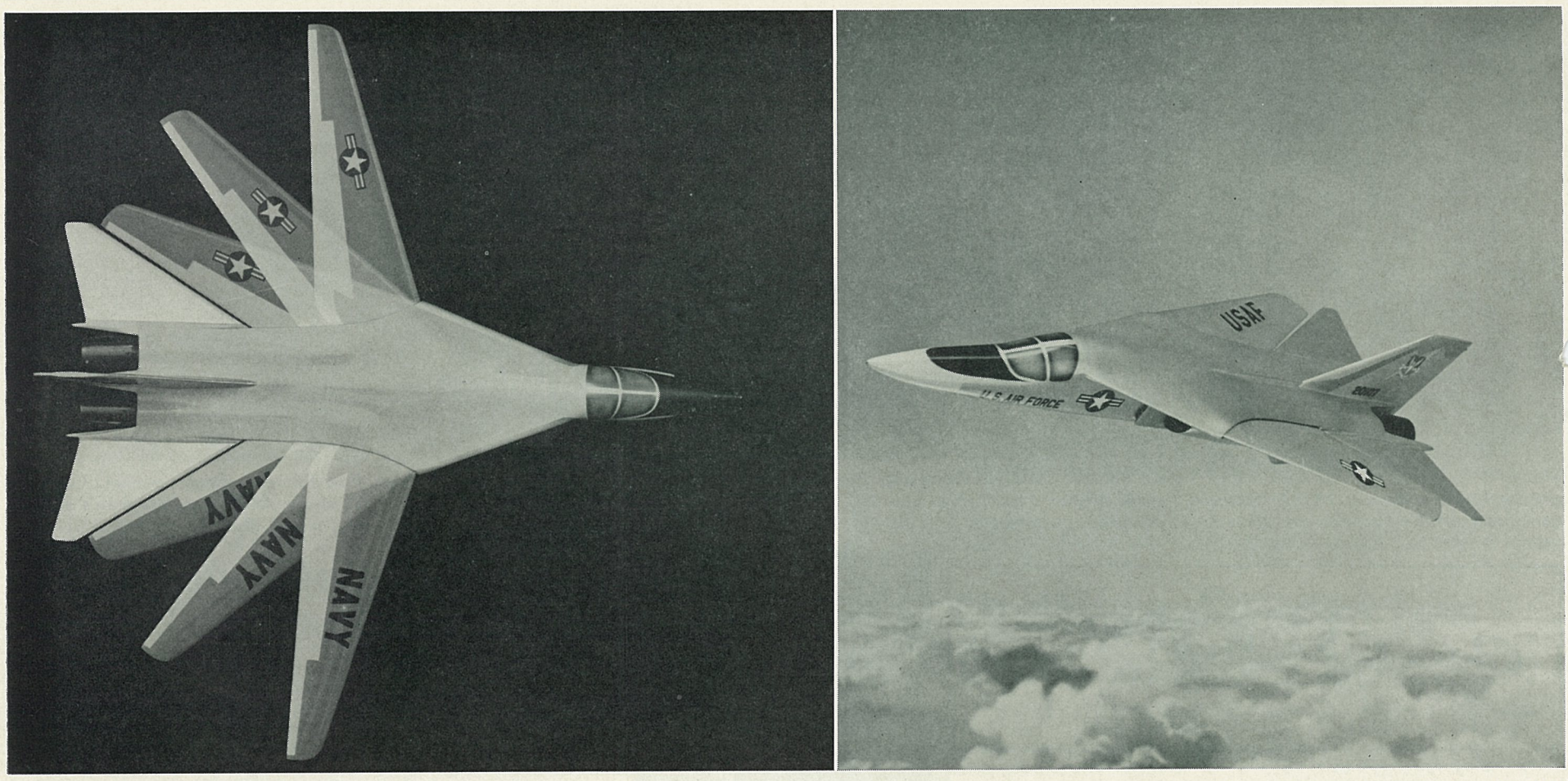
Other standings in the Short National were Halfacre, second, 256; Walker, third, 240; Young, fourth, 220.

Entries Open Today For Golf Tournament

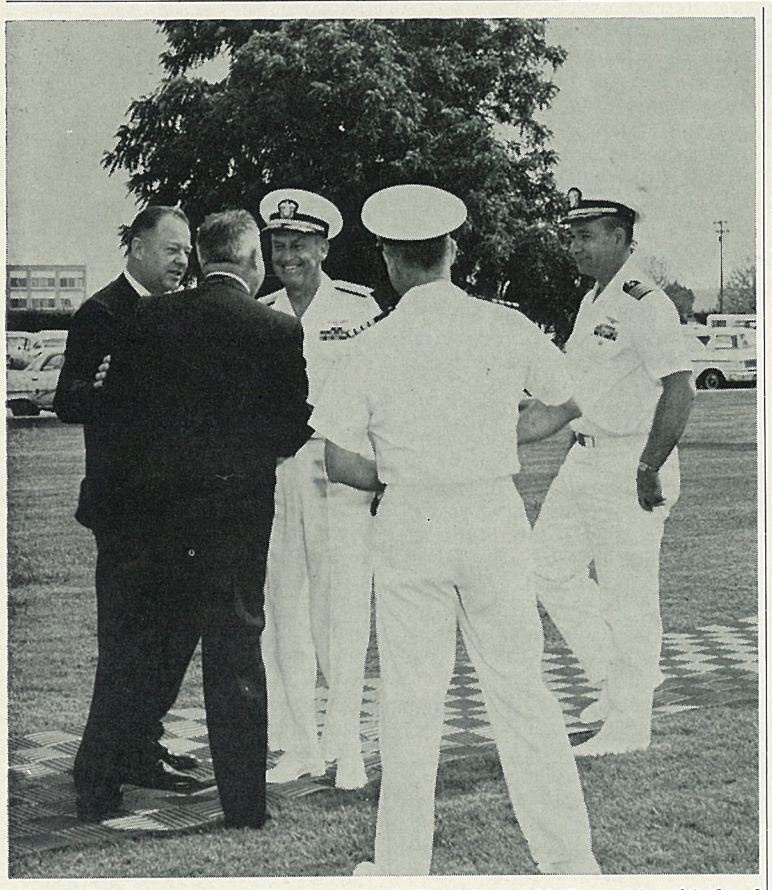
CRA golfers have from today until this Friday (June 5) to sign for this month's links tourney. Starting times will be given on a first-come, first-served basis, said Ken Wulfemeyer, CRA commissioner.

Monthly tournament will be the weekend of June 13-14 at Carlton Oaks Country Club course.

Call ext. 1705, Plant 1, to enter.



UNVEILED—Models of F-111 were unveiled last week for first time. At left, multiple exposure photo, using model with Navy markings, shows different settings for variable wing, adjusted for varying speeds and flight characteristics. At right is model with Air Force markings, with wing fully swept back.



WELCOME ABOARD — Admiral David A. McDonald, chief of naval operations, is welcomed by J. T. Cosby, GD/Fort Worth vice president-F-111 program director, and Frank W. Davis, GD/FW president. At right is Capt. John W. Fair, Office of Chief of Naval Operations. Capt. W. A. Mackey (back to camera) is Navy F-111 representative at GD/FW.

Gen. Hudnell Heads SAAMA Team At Convair Value Analysis Meeting

A value engineering team from San Antonio Air Materiel Area heard GD/Convair Division President J. H. Famme emphasize that value control and cost reduction were the division's "way of life" and had been for several years.

Convair's entire cost reduction program, including value engineering, was on parade last month before the Air Force group, headed by Maj. Gen. W. T. Hudnell, which is visiting companies doing business with SAAMA.

General Hudnell, SAAMA commanding officer, said that he and his team are anxious that all SAAMA subcontractors understand the Air Force's value engineering program and policies.

He and other spokesmen stressed that SAAMA is eager for all ideas that might cut costs on Air Force contracts. The AF officers urged that all cost-cutting suggestions be submitted for evaluation as soon as possible.

They went on to say that value engineering change proposals (VECPs) would be expedited in every way possible.

Incentives as high as 50 per cent of savings through VECPs are possible to companies under contracts bearing the value engineering clause, the team pointed out.

H. P. Williams, Convair's manager of value control, told the SAAMA team that the division is concentrating more and more on value assurance at design stages.

"We seldom get hardware downstream now that has not been thoroughly value analyzed in advance," he said as he explained that practically 100 per cent of Convair's key personnel have been trained since the division's value control program was expanded and re-emphasized four years ago.

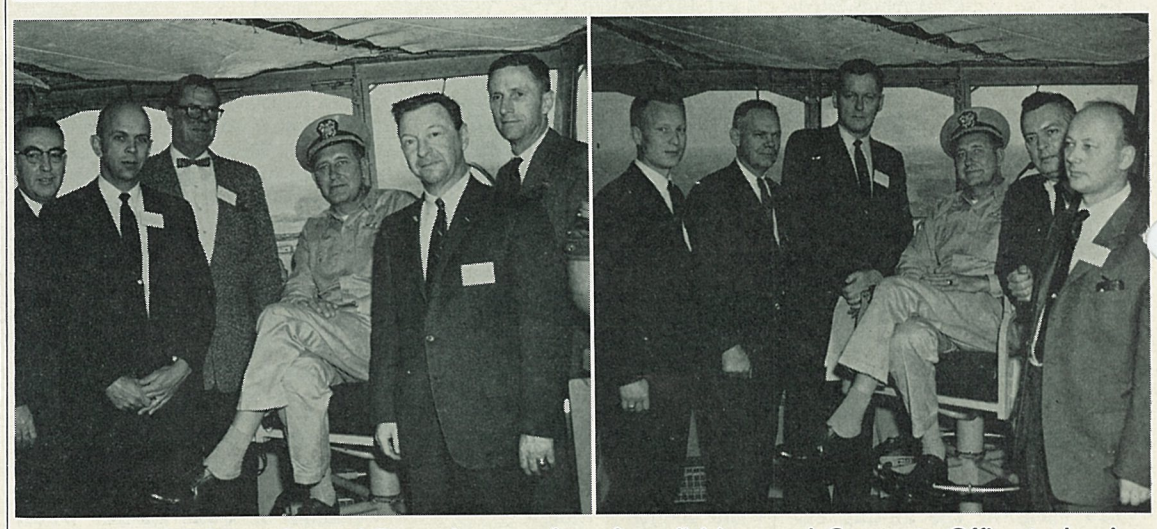
He outlined the organization of Convair's cost program in detail, showing how value engineering is dovetailed and supplemented with other phases: cost reduction in procurement and management economics, or reduction in operating costs, resulting in an efficient, all-encompassing, and never-ending war on unnecessary expense.

SAAMA VISIT — GD/Convair President J. H. Famme welcomes Maj. Gen. W. T. Hudnell, commander SAAMA, Kelly AFB, Texas, and team to GD plant on recent value engineering exchange. From left are Lt. R. C. Morgan, C. G. Mosely, Maj. J. F. Powell, L. O. Mendoza, Col. S. E. Allen, Gen. Hudnell, Famme, Col. E. E. Gossett, and Lt. Col. C. W. Atterholt, San Diego AF Contract Management District.

WRITERS SOCIETY ELECTS GD MEN

Two General Dynamics men will serve on the national board of directors of the Society of Technical Writers and Publishers following elections at the annual convention last month in San Diego. L. J. Solheid of GD/Convair was named first vice president and C. W. Thelen of GD/Fort Worth was re-elected treasurer.

RELIABILITY PANEL—Upper shot shows J. Y. McClure (center), General Dynamics director, reliability, quality control, value control, with guest speakers at GD Panel on Reliability held at New York May 11-13. From left are Col. Frank E. Brandeberry, USAF, Space Systems Division, Systems Command; Lt. Col. Ben Bellis, USAF, Assistant for Systems Management, Systems Command; McClure; Capt. T. V. Hennessey, Director of Assurance Engineering, Bureau of Ships, Navy Dept.; and E. J. Nucci, Department of Defense head of reliability. Group shot below is of the some 50 delegates from 11 GD divisions and Washington Office.



ON THE BRIDGE — General Dynamics men from four divisions and Corporate Office took orientation cruise aboard ASW carrier Essex last month. In photo at left are, from left: Gabriel Bureau, Corporate Office; C. Diehl, GD/E-Rochester; Dr. P. H. Miller Jr., General Atomic; Capt. W. R. Meyer, Essex skipper; H. I. Mandel, Electric Boat; Robert West, E-B. In photo at right: Victor Savchuk Jr., GD/E-Rochester; F. W. Bryan, Washington Office; A. L. Brennan, GD/E-Rochester, Captain Meyer, Paul Brandt, Red Bank field office; U. W. Pommering, Stromberg-Carlson.

GD

SAN DIEGO EDITION
(Serving GD/CONVAIR
and GD/ELECTRONICS)

GENERAL DYNAMICS NEWS

Vol. 17, No. 13 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, June 17, 1964

TFR DISCUSSION — Army pilot, Capt. Richard S. Freeze, makes visit to GD/Electronics - SD June 8 to investigate company's Terrain Following Radar before nonstop 2,967-mile flight in U-10 reconnaissance plane from San Diego to Fort Bragg, N.C. In photo Capt. Freeze points out new torso rubber fuel tanks which made possible long-range flight to GD/E's A. D. Melvin, Army requirements engineer.

Check on Tax Status Advised

Some taxpayers, who in the past have received rebates from the government because withholding deductions were more than enough to meet federal income tax requirements, may be in for a shock when 1964 tax reports are due next spring.

Changes in the withholding rate from 18 to 14 per cent, which went into effect in March, coincided with 1964-65 tax reductions.

BUT, in many cases the cut in withholding was more than the cut in taxes for this year, and as a result some may find they owe the government a tidy sum at the end of the year.

To compensate, employees may increase the amount now withheld from their paychecks by reducing the number of exemptions.

For Convair employees, new W-4 forms, available at Convair employee services, must be filled out, indicating number of exemptions, or none if desired, said J. L. Terrien, payroll supervisor.

If some find that their tax debt still will not be covered, even declaring no exemptions, Terrien suggests they put aside a tax fund in a bank account by payroll deduction. This is arranged by forms at employee services.

At GD/Electronics, prepunched W-4 forms with 1964 tax schedules attached have been issued each employee. These forms, completed and signed, were to be returned to payroll department today (June 17), said P. M. Jepson, manager of general accounting.

GD/E people may reduce the number of exemptions (or make no change) as in the case of GD/Convair employees.

However, in addition, GD/E payroll department will deduct withholding tax at either the current 14 per cent rate, or on the basis of the previous 18 per cent rate, if desired.

Changes at GD/E will start with the July 13 pay period and be reflected on checks issued hourly people July 24 and on flat-salaried checks issued July 31.

All GD/E employees on vacation or absent at the time the individual W-4 forms were distributed will be contacted by timekeeping.

Tax schedules, listing 1964 scale of income tax due, may be obtained from local Internal Revenue Service office, if not available elsewhere.

R&D REVIEW — NASA team from Marshall Space Flight Center visits GD/Convair's newly-consolidated manufacturing development pilot shop during June 5 review of division's R&D facilities and capabilities. F. F. W. Krohn, Convair design specialist (at left), displays specimen panel to Hans Wuenscher, Convair President J. H. Famme, Tim Eddins, Joseph Blumrich, Paul Maurer of NASA. In background is E. W. Feddersen, Convair chief of mfg. research and development (behind Wuenscher).

Mfg. Research Shop Expanded

A new manufacturing development pilot shop, which greatly expands the division's research and development technical capabilities, was completed and ready for use this week at General Dynamics/Convair.

The new 15,000-sq. ft. shop, located in the northwest corner of Bldg. 1, more than doubles the original laboratory area, and for the first time consolidates in one location all manufacturing research and development shop equipment, said E. W. Feddersen, Convair chief of manufacturing research and development.

Machinery and other equipment for the basic functions—metallics, non-metallics, electronics—have been arranged in separate locations for concentrated operations.

Metallics area contains heat treating furnaces, large metal cutting equipment, welding equipment including spot, or resistance, welders, tungsten and metallic inert gas equipment and manipulators, and plasma arc equipment.

Brought together for non-metallic investigation and research are hooded layup tables, high temperature ceramic furnace, electronic ovens, 50-ton hydraulic press with heated platens, band saw and circular saw, grinding equipment, clean room and refrigeration.

In the electronic section are power supplies, measuring device, electro spark forming equipment, and Laser development equipment.

"Primary efforts will remain in metal-to-metal bonding and development of fiber glass reinforced plastics," said Feddersen.

In addition, expanded applications of TIG and MIG welding techniques and development of plasma arc as a practical welding method will be investigated.

Manufacturing research and development engineers will continue development in the field of rapid pulse Laser as it can be applied to cutting or welding.

Improved Retirement Program Wins Final Approval of IRS

Improved retirement plan for non-represented salaried employees of General Dynamics has been approved by the Internal Revenue Service, Corporate officials announced last week.

The revised program, which actually was put into effect the first of the year subject to Internal Revenue Service approval, updates and increases prior accrued benefits, meanwhile slashing employees' contributions in half. It also includes a permanent and total disability benefit and liberalizes early retirement benefits for salaried employees.

Employee contributions are now 2½ per cent of base salary in excess of Social Security wage base, now $4,800 annually.

GD/Convair and GD/Electronics flat-salaried people, eligible for the improved benefits, will receive statements of their accumulated benefits through 1963 on the previous basis, and accumulated benefits updated in accordance with the new plan. These cards will reach all Convair and GD/E non-represented flat-salaried employees some time in July.

Booklets listing details of the new plan will be distributed within the next few months.

GD/E Club to Install Officers June 27

New officers of the GD/Electronics-SD Management Club will be installed at a dinner-dance Saturday, June 27, at the Stardust Hotel.

Members, wives, and guests will gather at 7:30 p.m. in the Stardust Room for a buffet-dinner. Dancing to Vic Vincent's orchestra will start at 9 p.m.

Tickets at $5.50 a couple now are on sale by departmental representatives in both facilities.

440 Convair-Liner Color Prints Free

Large colored prints of Metropolitan 440 Convair-Liner are being given away free at Convair employee services. Anyone may help himself from the stack of prints on the counter.

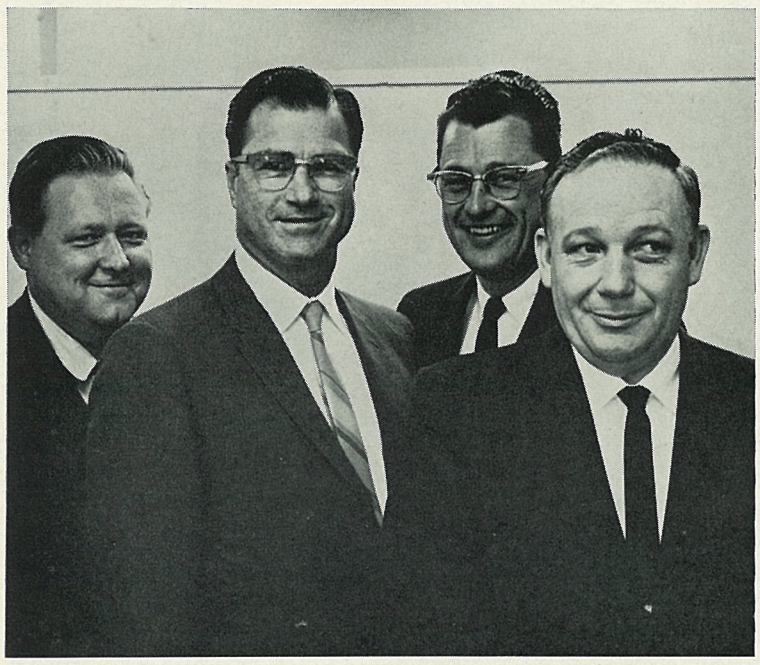
Other reproductions of General Dynamics products, both in color and black and white, are priced 13 for $1. They include shots of the F-102, F-106, 880 and 990 transports, Tartar guided missile, B-58, among others.

Mgt. Club Officers Attend Conference

GD/Convair Management Club members attending the 16th Annual Management Conference last month in Los Angeles were W. J. Wood, new president; Ralph Montgomery, past president; Vic Baros; and O. J. Ohlsson.

R. G. Macomber, financial secretary, attended as an officer of the San Diego Area Council.

C. F. Horne, president of GD/Pomona, presented the "Gold Knight Award" to J. L. Atwood, North American Aviation president.



PROSPECTS — In race for top office of GD/Electronics - SD Management Club during current balloting are (from left) Walter Orzechowski, Clay Murdock, Al Degler, Tom Morris. One will be introduced as new president at June 27 installation dinner-dance.

Tent Provides Mobile Clean Room For Joe II

Within a white round "tent" strung up in GD/Convair's Little Joe II production area, assemblers are working in clean room conditions.

The 15-ft. high, 15-ft. in diameter portable clean room was designed to Convair specifications especially for the handling of parts going into a hydrogen peroxide cart. The cart will fuel the reaction control system of the next Little Joe II vehicle to be launched at White Sands Missile Range, N.M.

All components are kept surgically clean to prevent contamination because of the unpredictable qualities of hydrogen peroxide, especially at the 90 per cent strength of the fuel, said Clarence Strand in charge of Little Joe II production.

As the hydrogen peroxide passes over a silver screen catalyst it decomposes into a hot, hot steam (around 1,400 degrees F.) to give the necessary thrust to the reaction control motors of the attitude control fin system. The 200-gal. tank containing the fuel, or the tubing through which it flows, could be severely damaged if the compound had an unexpected pressure buildup by coming into contact with contaminated material. A hole could be burned instantaneously in a tube or the tank, say materials specialists.

The environmental control tent, made of fiber glass impregnated with plastic, provides a change of air every 2½ minutes. It also contains a personnel dressing room for workers to change clothing before entering the main assembly area.

The tent, with the aluminum tubing used to support it, will collapse into an 8x15-ft. package

(Continued on Page 2)

Safety Standings

Division achieving best record:

Current month: (1) Pomona division, (2) Stromberg-Carlson, (3) Electronics-Rochester. Year to date: (1) Pomona, (2) Electronics-Rochester, (3) Convair.

Division achieving best improvement:

(1) Pomona, (2) Stromberg-Carlson, (3) Electronics-Rochester.

Log Book Entries

Service Emblems

CONVAIR

Service emblems due during the period June 16 through June 30.

Thirty-year: Dept. 14-4, Frank Cary; Dept. 101, W. J. Gramse.

Twenty-five-year: Dept. 42-3, M. C. Hangen; Dept. 128, E. E. Carpenter.

Twenty-year: Dept. 6, V. L. Booth, J. D. Donaldson, F. E. Wilson; Dept. 101, A. B. Clark; Dept. 115, A. J. Capuccini, Albert Reiter.

Fifteen-year: Dept. 6, Marjorie K. Dickerson, W. F. Presch, J. C. Ramsey; Dept. 14-5, Leona W. Taylor; Dept. 27-6, Eva S. Sessions; Dept. 93-0, R. H. Knapp; Dept. 115, S. T. Krebs; Dept. 119, L. E. Anderson.

Ten-year: Dept. 6, J. T. Lack, Victor Millman, W. G. Walker; Dept. 15-0, Paula L. Meek; Dept. 48, S. W. Gill, M. B. Koenekamp.

ELECTRONICS

Ten-year: Dept. 65-10, D. S. Bunce.

Personals

CONVAIR

We wish to express our appreciation and thanks to General Dynamics personnel for the lovely floral sprays in honor of our beloved husband and father.

Mrs. D. R. Conklin and David.

* * *

We are deeply grateful to Convair friends for the beautiful flowers, and donations to the cancer fund in memory of Richard Small, Dept. 171.

Mrs. Richard Small and family.

* * *

I wish to convey my deepest appreciation to Dept. 401-4 employees and my other Convair friends for their expressions of sympathy upon the death of my wife, Dorothy.

D. F. Winters
Dept. 401-4

Deaths

CONVAIR

SMALL—Richard, Dept. 171. Died June 1. Survived by wife, Lynwood, two daughters and a son.

Awards

CONVAIR

Employee Suggestion Awards approved for periods ending May 29 and June 5.

Dept. 15, N. D. Jones, $25.60.

Dept. 101, C. V. Beeson, $84.40; Leo Budzynski, $96.90.

Dept. 115, F. Pagliuso, $10.

Dept. 119, R. W. Talmage and G. E. Armstrong, joint award, $57 each.

Dept. 131, G. K. Phares, $10.

Dept. 140, D. W. Kennedy, two awards, $33.40 and $10.

Dept. 400, G. Radici, two awards, $10 and $58.08; F. D. Slavens, $40.

Cost Improvement Proposals approved for the same periods.

Dept. 15, R. D. Qua, two proposals.

Dept. 34, M. Formanek, E. R. Hockert, L. W. Klingenmeier, J. A. McSparron.

Dept. 91, F. S. McCullough.

Dept. 93, R. G. Macomber.

Dept. 119, L. W. Stamper, two proposals.

Retirements

CONVAIR

BOETTCHER—Fred W., Dept. 48-32. Seniority date Feb. 8, 1955, retired May 9.

CRAIG—Jackson V., Dept. 14-4. Seniority date Oct. 26, 1955, retired April 19.

DODD—Stephen A., Dept. 31. Seniority date Jan. 21, 1936, retired April 17.

EBY—Donald C., Dept. 401-0. Seniority date July 7, 1936, retired May 21.

FINK—Benjamin, Dept. 133. Seniority date Nov. 25, 1947, retired May 30.

HEYNEN—Louis W. H., Dept. 16-1. Seniority date June 8, 1953, retired May 30.

LEITH—Stanley, Dept. 23-1. Seniority date July 29, 1953, retired May 30.

MULLICAN—J. Ellis, Dept. 401. Seniority date Oct. 4, 1937, retired June 3.

SHRYOCK—Caroline B., Dept. 401-7. Seniority date Oct. 5, 1950, retired April 30.

TODD—Dorothy V., Dept. 93. Seniority date Nov. 7, 1951, retired May 28.

Move Under Way to Eliminate Stream of 'Dead Letter' Mail

People come and go, but mail just piles up!

A drive to cut off at the source the stacks of "dead letter" correspondence, circulars, periodicals that come to GD/Convair daily, addressed to persons "whereabouts unknown" has been put into motion by H. P. Williams, value control manager.

Secretaries throughout the plant have been supplied with form letters to send circulation managers, urging that they immediately remove from their mailing lists names of people no longer with Convair.

"We're trying to reduce our costs, and assume other companies are, too," said Williams. "In the interest of both parties, we want to stop this tremendous flow of unnecessary and unwanted mail and the time-consuming tasks of handling, sorting, readdressing that goes with it."

Valuable hours are wasted by many people, from the time it leaves the sender, through the post offices at both ends, the division's mail room operations, until it is piled on some secretary's desk. Then, comes the frustrating search for correct addresses, usually unknown, in an attempt to reroute it.

Carol Ulrey, secretary to the division's president, estimates that she handles and tries, to the best of her ability, to send on about 200 pieces of this "lost" mail every month.

That figure multiplied by the "wandering" mail received in other offices can reach to astronomical heights in a year's time—and take many, many hours of valuable time before it is finally tossed into wastebaskets some place along the line.

"When moving, notify your correspondents!" said Williams.

ADDRESS UNKNOWN — Carol Ulrey and Mary McNeil, GD/Convair secretaries, ponder what to do with stacks of mail coming to people no longer with division.

General Dynamics NEWS

Published by General Dynamics Corporation, One Rockefeller Plaza, New York 20, N. Y.; with editorial headquarters at 3302 Pacific Highway, San Diego 12, Calif., P.O. Box 1950, telephone 296-6611, ext. 1071. Logan Jenkins, editor-in-chief.

Astronautics Editorial Offices, Bldg. 8, GD/Astronautics, Mail Zone 130-01, P.O. Box 1128, San Diego 12, Calif. Telephone 277-8900, ext. 3322. Staff: Bryan Weickersheimmer, editor; Willard Harwood.

Convair Editorial Offices, Bldg. 32, Plant 1, GD/Convair, Mail Zone 1-320, P.O. Box 1950, San Diego 12, Calif. Telephone 296-6611, ext. 1071. Staff: Grayce Fath, Helen Pemberton.

GD/Electronics (San Diego) news contact: Helen Wood, 298-4641, ext. 1377, Plant 1, Bldg. 51.

Fort Worth Editorial Offices, between Cols. 71-C and 71-D, Assbly. Bldg., GD/Fort Worth, Mail Zone T-63, P.O. Box 748, Fort Worth 1, Texas. Telephone PErshing 2-4811, ext. 2961. Staff: Dave Lewis, editor; Mary Beck.

Pomona Editorial Offices, Room 119, Bldg. 1, GD/Pomona, Mail Zone 3-13, P.O. Box 1011, Pomona, Calif. Telephone, NAtional 9-5111, ext. 6226-5279. Staff: Glenn Kehr, editor; Carol Colbert. Daingerfield news office, P.O. Box 947, Daingerfield, Texas. Telephone Lone Star, Texas, 2211, ext. 424.

* * *

Affiliated editions of General Dynamics NEWS are published in Rochester, N. Y., covering GD/Electronics and Stromberg-Carlson, editorial offices, 100 Carlson Road, HUbbard 2-2200, ext. 2555. Fred E. Voss, editor; and at Groton, Conn., covering GD/Electric Boat, editorial offices at Groton, HIltop 5-4321, ext. 300 and 513, Joseph Tracey, editor.

AT HELM — Newly-elected officers of GD/Convair Management Club installed at June board meeting are, from left, (seated): Ken Wulfemeyer, board member; Larry Sweeney, first vice president; W. J. Wood, president; Ray Lange, second vice president; Bob Macomber, financial secretary. Standing are S. W. Swenson, Jack Benedict, L. J. Solheid, Clarence Strand, board members; Harold Hahn, recording secretary; Herb Day, M. C. Tombler, Larry Hayes, board members; K. K. Verseckes, treasurer; D. D. Dimmitt, board member; and Ralph Montgomery, outgoing president. Wulfemeyer, Hayes, and Dimmitt are board holdovers.

Mgt. Club Members To Visit Pine Crest

Convair Management Club members and families will travel to Pine Crest this Saturday (June 20) for their annual summer picnic.

Picnic site is CRA's mountain resort area near Julian, opposite Inspiration Point. Hours are from 11 a.m. until 5 p.m.

Tickets at $1 per family are available at all usual outlets.

Theater-Goers To Get 'Break'

GD/Convair and GD/Electronics theater-goers may attend Starlight Opera and Circle Arts performances this season at a substantial reduction in price through CRA-arranged discounts.

A 30 per cent off regular prices of Starlight tickets is possible by using the special discount passes, now on hand at Convair and GD/E employee services.

Tickets must be exchanged at Borgen's Music Co., 700 Broadway, or at the Bowl box office on the evening of performance.

Musicals scheduled this summer are "Song of Norway," July 16 through 19, and 23-26; "Wizard of Oz," Aug. 6-9, 13-16, "Sound of Music," Aug. 27-30, Sept. 3-6; "Here's Love," Sept. 29-30, Oct. 1-5.

Circle Arts exchange tickets allow reduction in prices on special IRC nights.

Discount night for "Sound of Music" is June 23 and for "Li'l Abner," July 7.

With the tickets, regular $4.50 seats are reduced to $3.15, and $3.75 seats to $2.60.

Tickets must be presented at Circle Arts box office at least 2 days before the performance date.

Hurry up For Padre Drawing

Baseball fans have only a couple of days left if they want their names in the hat for the CRA drawing for free Padre tickets.

June 19 is date of the drawing.

Entries will be thrown out if they do not include complete identification: name, clock number, shift, department number, location, plant phone extension. Only one entry a person is allowed.

Slips may be deposited in the Baseball Drawing box on employee services counter, Convair Plant 1, Bldg. 32.

Tickets given away at this month's drawing will be for home games played at Westgate Park throughout the rest of June and the entire month of July.

There will not be another drawing until the end of July for August games.

When telephoning, never mind the weather. Get to the point. Telephone time costs money.

Tent Provides Mobile Clean Room For Joe II

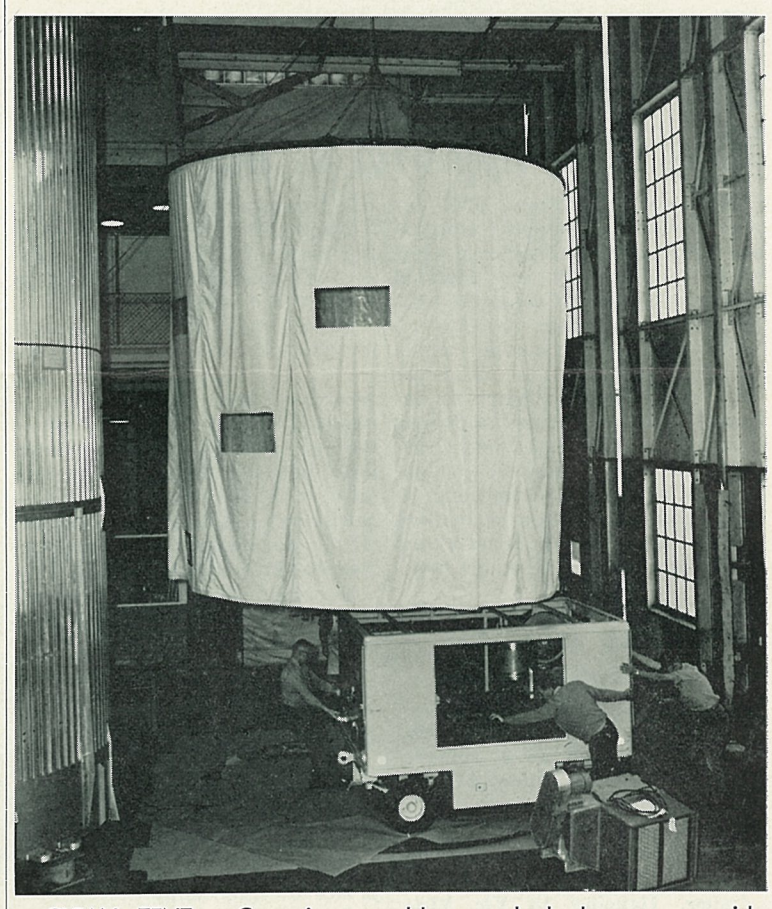
(Continued from Page 1)

for shipment to White Sands along with the hydrogen peroxide cart later this year. Before the actual launch, as yet not definitely scheduled, workers will install the reaction control motor package on the fins inside the tent.

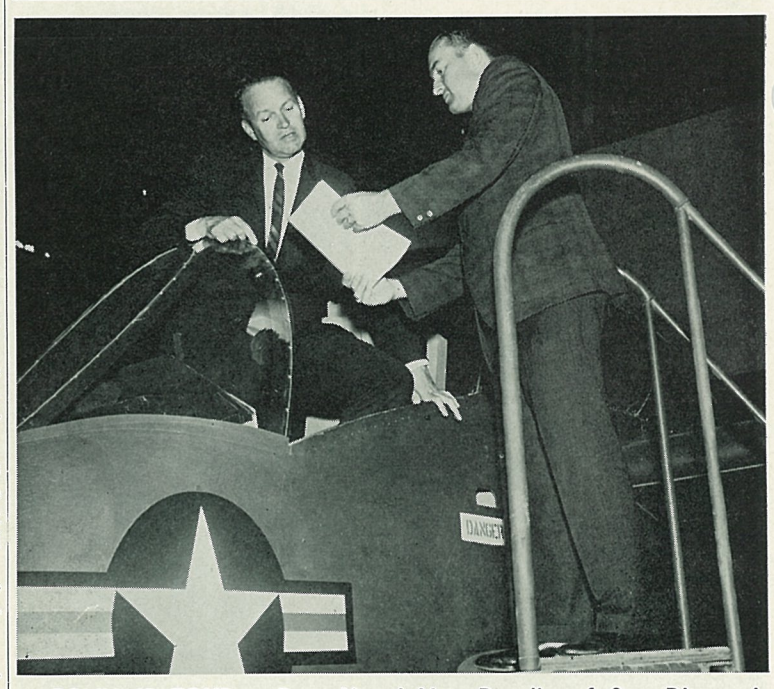
Then, in a well-protected outside area, the motors will be fueled with hydrogen peroxide, then drained, during a preliminary checkout before fins are attached to the Little Joe II vehicle before launch.

The assembled fueling cart will be ready for operational checkout at Convair early next month.

The first two Little Joe II vehicles to be launched were equipped with fixed fins. However, the third to be fired will be fully equipped with the Convair-developed attitude control system, incorporating autopilot, fin, and reaction control subsystem, for complete control throughout entire flight.



CLEAN TENT — Convair assemblers push hydrogen peroxide cart under new environmental control "tent" in Little Joe II production area. Cart, which will be used to fuel reaction control system of next Little Joe II, will be assembled in surgically clean conditions within fiber glass room.



CONVAIR TOUR — Rep. Lionel Van Deerlin of San Diego is briefed by J. E. Fink on Convair's design for COIN, counter-insurgency plane for brush-type warfare, now under evaluation by Bureau of Naval Weapons. Van Deerlin, snapped with Fink in COIN mockup, reviewed Convair projects during recent plant tour.

Can it Hear a Noise? Or Make One? Then GD/E-Roch. 'Listening'

(On this page is another in a continuing series of articles describing history and products of General Dynamics divisions.)

General Dynamics/Electronics-Rochester is primarily concerned with electronic communications—in the broadest sense.

From satellite tracking equipment to electric eels, from military multi-channel single sideband radio to sound and music distribution systems for schools, from speech compression to anti-submarine warfare devices—and with many stops in between, GD/E-Rochester is interested in everything that makes a noise, hears a noise, or records and transmits information.

A full-grown and important division of General Dynamics, GD/E-Rochester has a short history and a distinguished ancestry.

Separated from the parent Stromberg-Carlson division in September, 1961, the new division consolidated its operations and continued physical location at the Electronics Center plant, which Stromberg-Carlson began to occupy in late 1956 following purchase of the 800,000-sq.-ft. plant from Bond Clothes, Inc.

CAFETERIA AS BIG AS POLO FIELD

This facility, facetiously termed "the pants factory" by the first group of engineers to move in from their crowded quarters at the old Carlson Road plant of S-C, provided welcome breathing space. The cafeteria alone had an area of 39,000 sq. ft.—almost big enough for a polo field—and the main corridors throughout the building were, and are, 16 feet wide. The cafeteria has since been subdivided into office units, with still enough seating for 500 at a shift.

More than four years elapsed before the operations at Electronics Center became a functioning and "free-standing" division of the Corporation. During this period, the general trend of operations was toward military electronics, though several other product lines had their day before being transferred to other locations or discontinued. Digimatic, (taped control of machine operations), Pagemaster (a wireless selective individual paging system), and auto radio were sold and the hi-fi business discontinued.

DIVISION FORMED IN AUGUST, 1961

Net result was that the Electronics division, as set up on Aug. 30, 1961, by Charles F. Horne was geared to making a fair profit in military and industrial communications/electronics. Horne served for more than a year (until November of 1962) as president of this division while continuing as president of GD/Pomona.

Even before 1961, a number of physical changes — aside from carving up the cavernous cafeteria — took place.

By the first of August, 1959, the Rochester Products Division of General Motors moved out of 55,000 square feet of space, on a lease inherited from Bond Clothes. A year later the Bond retail store, located in the front ground floor area, moved out, finally giving the division use of the entire building.

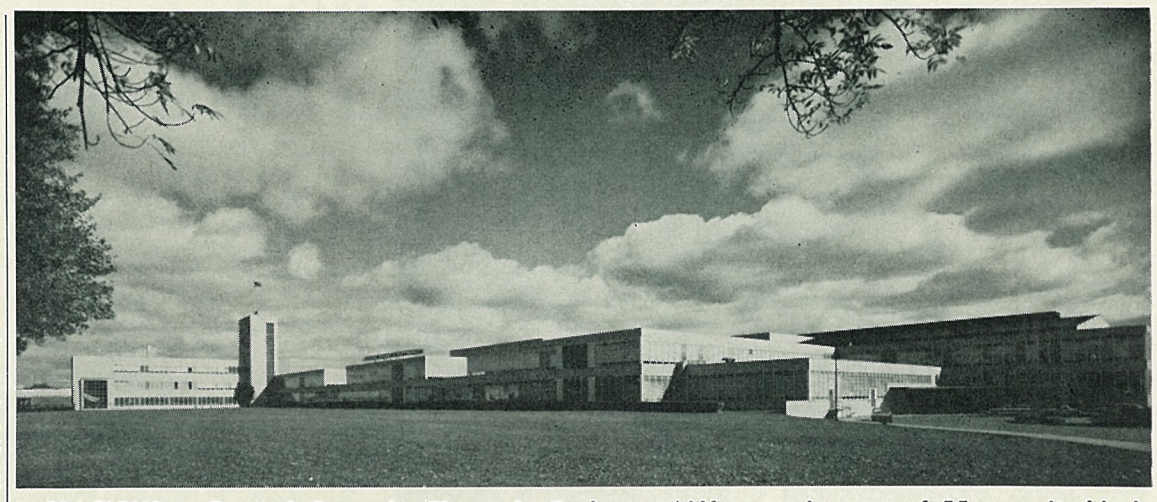
Another facility — the indoor sonar tank, a half-million gallon "bath-tub," 40 feet in diameter and 30 feet deep, was built in 1958. At that time it was the largest such facility in the free world.

DIAL-X intercommunicating and battle announce systems built at Electronics Center were installed in the first of the Polaris-carrying nuclear submarines in 1959. All subsequent Polaris submarines have been similarly equipped.

SINGLE SIDEBAND RADIO POPULAR

Company-sponsored development of single sideband radio, accepted first by the U. S. Air Force, was the forerunner of a contract for the Navy in 1959 for two engineering test models. In June, 1960, the division received a U. S. Army Signal Corps contract for single sideband, followed by another contract from the Air Force in 1961, making the division an important supplier of this type of equipment to all three branches of the armed forces. During the same period, other types of radio equipment for the military were developed, such as a portable intracom unit for missile sites, remote control for radio, and a number of experimental projects.

In late 1961 a specially modified 165-foot barge christened "Darius" moved into position on Seneca Lake to serve as a maneuverable floating laboratory for studying underwater sound. The Darius and its dock on the west side of the lake comprise the SUTEC (Senaca Underwater Test and Evaluation Center) facility. Completely instrumented and equipped with a winched A-frame of some 35 tons capacity, the Darius spends most of its time moored in the middle of 600-foot deep (and ice-free) Seneca Lake, where transducers can be studied and tested under conditions quite similar to those in the ocean.



SPACIOUS — General Dynamics/Electronics-Rochester, N.Y., occupies part of 55-acre city block. Present population of plant is about 3,500.

Increased emphasis on the industrial products operation showed, with shipment in early 1962 of nine more DIAL-X intercommunication systems for Polaris-firing nuclear submarines. These were the first of more than 40 such systems with which all submarines of this class are equipped. Radio intercommunication equipment for the Titan missile bases came along at the same time, in connection with Stromberg-Carlson's responsibilities for a complete communication system. Initial production of sonobuoys began at this time, a forerunner of important continuing business in the anti-submarine warfare field.

A long-term highly classified reconnaissance program with the Air Force continues to be one of the division's major efforts. Likewise more recently, the ground support program for the famed F-111 plane occupies prime attention.

Pattern recognition and speech-compression development, biophysical studies of electric fish communication, data communication, and ocean current measurement are other examples of diverse activity. LASER and thin film research is a prime interest of division scientists.

During 1962 the SUTEC facility became operative. This valuable addition to the company's capability in undersea research and testing also became available for outside contract work.

MANAGEMENT CLUB ORGANIZED

Spare-time employee activities also showed healthy growth during this time. The Electronics Recreation Association came into being as an independent divisional organization. Its first big picnic in the summer of 1962 encouraged ventures in other areas including dances, athletics, out-of-town group trips, etc. A local club of the National Management Association also was organized and has prospered. It currently is sponsoring a youth business program in cooperation with the Rochester Junior Chamber of Commerce.

The division is now at its peak in employment, with approximately 3,500 employees. As would be expected in a company with such highly specialized and complex products, the ratio of engineers, scientists, and support personnel to others is exceptionally high.

Under the leadership of Richard A. Wilson, who came to General Dynamics/Electronics in November, 1962, and became president in January, 1963, the division has gone steadily forward and is now at an all-time high point in both volume and backlog of business for the future.

Profitable operations were achieved in 1962 and 1963, and the division looks forward to continued improvement in operations in 1964 and 1965.

GD/E-Rochester Products

MILITARY PRODUCTS

Radio communications — single sideband receivers, transmitters and power supplies; digital communication receivers, complete transportable communication systems, and other associated devices and components.

Aerospace ground equipment — automatic or semi-automatic test equipment to check any electronic equipment destined for operation above, below, on, or beyond the earth's surface and atmosphere.

Space electronics/navigation — electronic systems and subsystems for unmanned satellites, space probes, and manned spacecraft; also electronic navigation systems (ground, ship, or air) and allied equipment.

Reconnaissance/countermeasures — radar, reconnaissance equipment, and ECM equipment.

Anti-submarine warfare — airborne, ship, submarine, and ocean-bottom equipment, such as sonobuoys and receivers, transducers, undersea beacons, designed specifically for undersea warfare.

Data communications — special purpose computers, data transmission systems, data acquisition and logging systems.

INDUSTRIAL PRODUCTS

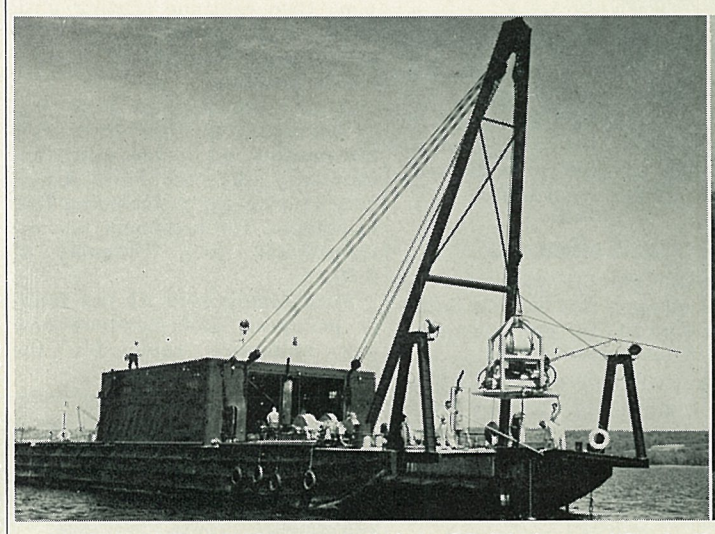
Sound and music distribution systems for both indoor and outdoor use, in factories, auditoriums, institutions, and the like.

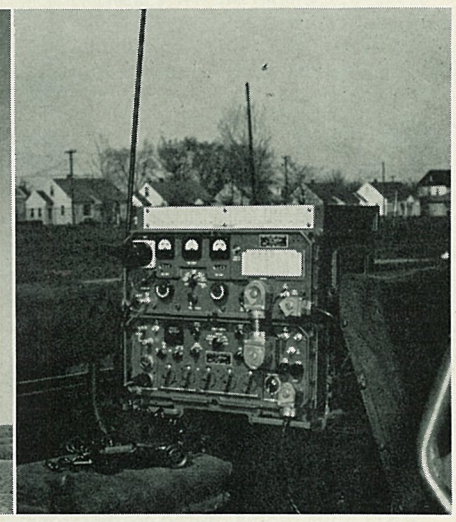
Custom engineered line of program and intercommunicating systems for schools.

Nurse-patient communication systems and doctors' registry systems for hospitals and nursing homes.

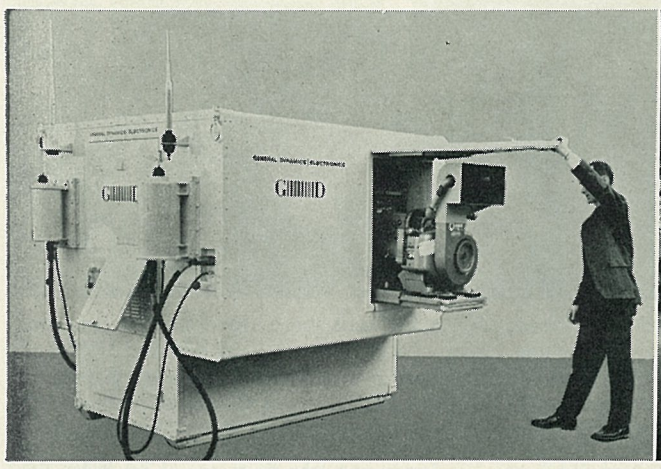
Fire alarm systems for business, industry, and institutions.

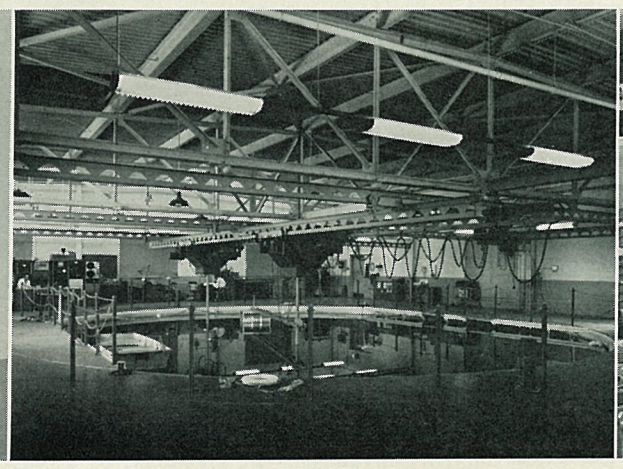
Private dial telephone systems, as used for both industry and military, such as the DIAL-X systems on all Polaris type nuclear submarines.

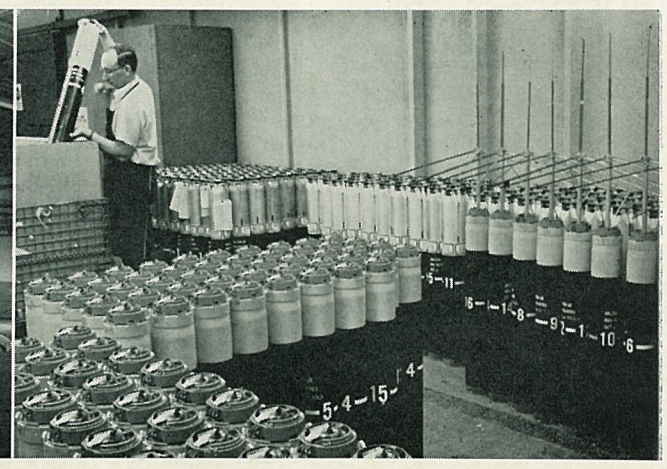




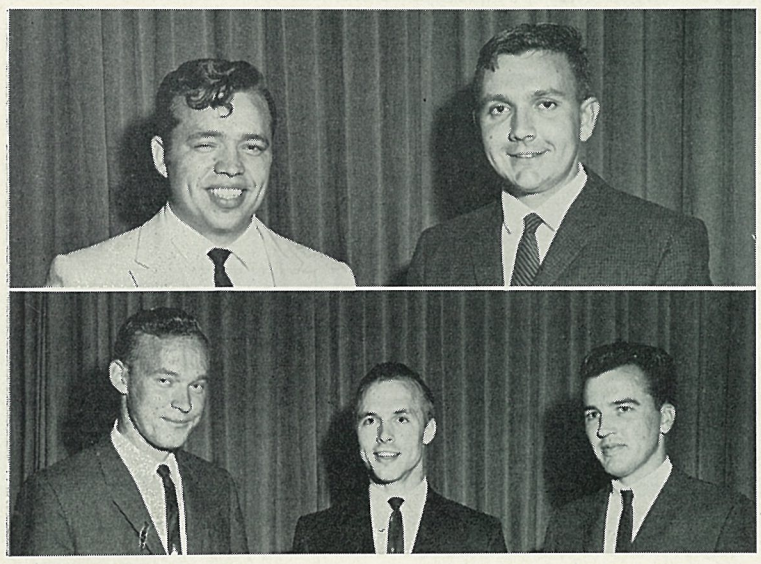
AT SEA AND ASHORE — At left is GD/E's barge "Darius" on Seneca Lake, used in undersea research. At right is early version of division's AN/GRC-106 single sideback radio, jeep-mounted, rugged, powerful.







At left is new "Intra-Power" unit which houses complete radio communication system, isolated air-cooled engine and generator. Center: 450,000-gallon sonar tank with bank of recording equipment. Right: sonobuoys are steady product at GD/Electronics-Rochester.



GRADUATES — Above are some of nine Convair and Astro apprentices receiving certificates at annual completion ceremony June 4. In upper shot are Gordon Hook and Al Carlson of Astro. Lower photo shows Chester Reinys, Raymond Wyborny, James Bridgman of Convair.

Convair and Astro Apprentices In Graduating Class of 200

Four Convair and five Astronautics apprentices were among the some 200 San Diego young men honored at the 23rd annual Apprenticeship Completion Ceremony June 4 in El Cortez Hotel's International Room.

The dinner and ceremony, which rewards all apprentices completing their training from August of last year to August of this, was sponsored by the San Diego General Apprenticeship Committee jointly with SD Junior Colleges, State of California Division of Apprenticeship Standards, U.S. Dept. of Labor, Bureau of Apprenticeship and Training and individual trade committees.

Dr. John Dunn, president of Palomar College, delivered the graduating address to the San Diego apprentices.

Only General Dynamics member of the Joint Apprenticeship Committee to receive a meritorious service certificate was Walter T. Herchold of Astro, who has spent five years on the committee.

Graduating apprentices from Convair were Chester Reinys, Raymond Wyborny, James Bridgman, John Smith, all taking their four-year training in electronics.

Those from Astro were Gordon Hook and Steven Miller, machinist; A. A. Carlson, plastic plaster patternmaker; James Carter and William Shoemaker, tool and die.

H. W. Rubottom, in charge of Convair educational services, and Jack Croft, Astro chief of educational services, both represent their divisions on the Joint Apprenticeship Committee. William Stewart is Astro apprenticeship coordinator and Wayne Turner, Convair coordinator for the training program.

100 Will Take Spanish Class

A capacity crowd of General Dynamics people jammed the opening session of CRA-ARA's "tourist" Spanish course last week in the Convair executive dining room and viewed a slide travelogue of "Mexico — 1963," last summer's group tour.

Over 100 signed for the 12-week course in basic and practical Spanish which will culminate again this year in the annual GD trip to Mexico. Jim Hardison of GD/Convair, instructor of the Spanish classes, conducts the tour for GD travelers.

A special meeting to discuss details of the two-week journey will be held Monday (June 29) at 6:30 p.m. in Convair executive dining room, Pacific Hwy.

The de luxe tour, by air conditioned train, will be from Aug. 21 to Sept. 6. Price for transportation, hotel accommodations, sightseeing, two meals a day is $360 per person.

Hardison may be reached evenings at his home phone, 276-5805, for full information.

Anyone interested in the Spanish classes may still enter by attending sessions on Monday evenings, 7-9 p.m., in the dining room location. Students do not have to sign for the Mexican trip to be eligible for the language course.

JOSEPH MOLTER EARNS DEGREE

One of the most "senior" seniors to be graduated by California Western University this term is GD/Astro's Joseph J. Molter, calibration technician in Dept. 142-2.

Molter, 58, retired from Navy service in 1956, and joined GD/Astro. He enrolled at Cal Western in 1959 and completed all his college work in night classes, earning a bachelor's degree in industrial management.

Participation in GD/Astro's tuition refund program has "sold" Molter on the merits of higher education: he will work toward a master's degree.

Trapshoot Pot Grows to $150

The kitty is still growing in CRA Gun Club's Troy trapshooting matches.

Everyone tried, but not a single contestant was able to hit 50 straight at the May 31 shoot, leaving the big prize of well over $100 unclaimed.

Pool for the next Troy shoot stands now at $150, plus that day's share of entry fees, as grand prize for perfect score in the combined 16-yd. and handicap events.

Of the 19 who turned out on Memorial weekend, the two high-scorers were Bill Shrode of Fallbrook and L. P. Johnson of Chula Vista. They both knocked down 24s in 16-yd. and the same in the handicap to tie at 48. Each drew $7.25 in prize money.

Shooters will have another crack at the big money July 5.

Next open shoot at Gillespie Field Gun Range will be an ATA registered trapshoot Sunday (June 28).

The registered skeet shoot set for June 21 has been cancelled because of a conflict with the Mullenix shoot the same day at Miramar NAS Range.

ASQC Will Install Officers at Dinner

Three General Dynamics men will be installed as officers of San Diego section, American Society for Quality Control (ASQC) at a dinner dance at Point Loma Inn, July 25.

They are GD/Convair's L. C. Stuckey, chairman, and L. I. Frederickson and H. H. Mishler of GD/Astro as vice chairman and secretary. Tickets are available from ASQC boosters at both divisions.

AIAA Conference To Hear GD Men

General Dynamics specialists from four divisions will give technical papers at the first annual meeting of the American Institute of Aeronautics and Astronautics (AIAA) in Washington, D. C., June 29-July 2.

Latest technical advances in every area of the aerospace field will be discussed at the meeting which is expected to draw 5,000 professional flight scientists and engineers from all parts of the country.

Dr. Hugh L. Dryden, Deputy Administrator of NASA; Prof. Courtland D. Perkins, AIAA president; Robert C. Seamans, Associate Administrator of NASA; Eugene G. Fubini, Assistant Secretary of Defense—Research and Engineering; Najeeb Halaby, FAA Administrator, will be featured speakers.

General Dynamics people on the program are, from GD/Astronautics — Grant L. Hansen, Bernard D. Newson, Kaye F. Nelson, Wendell J. Lomnicky, J. F. Haskins, J. L. Percy Jr., M. Griggs, John A. Fager, H. D. Girouard, J. A. L. Thompson, L. D'Attore, F. P. Boynton, Paul E. Wilson, Edward E. Spier, G. D. Magnuson, A. W. McReynolds, H. G. Arrendale, R. G. Rose, R. D. Harris.

GD/Convair — Torstein Strand, A. C. Conolly; GD/Electric Boat—Joseph A. Lubitz, Richard J. Benoit, Harold Wallman, Thelma E. Adamson, H. E. Sheets, R. R. Loughman; GD/Fort Worth, E. B. Maske.

Son of Orien Reed Earns Scholarship

CAPE KENNEDY—A three-year Navy ROTC scholarship has been given to the son of an Astronautics test conductor here.

He is Donald Reed, 18, son of Complex 12 test conductor Orien Reed.

A freshman at Georgia Tech, young Reed will study under his scholarship at Auburn University. He is currently taking part in a two-month summer cruise with the Naval Reserve. An electrical engineering student, Reed is slated for a commission in the Navy Reserve following his studies.

Unusual Instrument Slated For Meeting

A rare musical instrument—the electronic accordion—will be featured at the meeting of Hi-Fi/Music Club, 7:30 p.m., June 24 in ARA Clubhouse, with Larry Brache performing.

At its July 14 meeting, the group will hold a swap meet for exchange of stereo components, test equipment and tools.

Salvage Schedule

Convair salvage yard at Plant 1 will be open this coming Saturday (June 20) for employee sales from 8 a.m. until noon.

The yard will be closed on July 4 during the holiday weekend.

Next sales day at the Astro salvage yard at Kearny Mesa is July 11.

ASTRO'S LEHMAN PASSES BAR EXAM

Peter C. Lehman, a member of Astronautics' organization planning staff of management systems (Dept. 150-0) was notified recently of having successfully passed the California State Bar examinations. Lehman holds a BS degree from Georgetown University and LLB degree from the School of Law, University of San Diego.

PROGRAMMED INSTRUCTION CHAPTER MEETS JUNE 25

San Diego Chapter of the National Society for Programmed Instruction will hold its regular monthly meeting next Thursday (June 25), said Griff Williams of GD/Convair, chapter president. Meeting will be at 7:30 p.m. in Convair cafeteria, Pacific Hwy.

Naval Reserve Officer School Involves Scores of Dynamics Men

Nearly half-a-hundred General Dynamics men will be among current term graduates or faculty members of Naval Reserve Officers School (NROS 11-2) when informal concluding ceremonies are held next week.

All are U. S. Naval Reserve officers who earn both promotion and federal service retirement credit by regular participation in the school's weekly two-hour classes in a variety of college-level subjects.

Speaker at graduation ceremonies will be VAdm. J. B. Colwell. Now Pacific Amphibious Force commander, Adm. Colwell is a naval ordnance specialist who has served as assistant experimental officer, Naval Proving Ground; deputy director of the Polaris project; and as senior naval assistant to director, defense research and engineering, Office of the Secretary of Defense.

During the current term, NROS operations included 16 courses taught at five San Diego-area locations, and ranging from Industrial Management to National Strategy.

Ross A. Evans, GD/Astro manager of personnel administration, is the school's executive officer, and the faculty includes J. H. Johnson, director of management systems; R. G. Stoklosa, E. W. Thurston Jr., and R. G. Wilson of GD/Astro; George Schnurrer of General Atomic.

GD/Astro students include:

J. G. Helleis, W. G. Michael, J. T. Ratajkowski, J. T. Lane, F. B. Van Valkenburgh, A. C. Walker, G. J. Bartolomei, L. E. Bennett, D. K. Callow, G. F. Chandler, G. L. Ebner, E. L. Fitzgibbons, E. P. Ford, H. D. Fyffe, J. V. Gallagher, T. M. Gammage, A. C. Gates, R. C. George.

D. P. Germeraad, R. F. Kalal, W. A. Miller Jr., J. R. Mitchell, L. H. Newbrough, H. L. Obertreis, W. Pfefferle, W. W. Stiers, R. K. Strowmatt, J. W. Vega, B. Weinbaum.

Taking part from GD/Convair are T. L. Lague, W. H. Bond, J. E. Foster, A. R. Hermann, G. A. Howell, E. H. Price Jr., J. W. Redfield, R. A. Tulk.

GD/Electronics-San Diego is represented by R. F. Schillinger.

Top Executives Speak June 23

Four top Astronautics executives will be key speakers at a June 23 "Astronautics Night" staged by San Diego Chapter, American Institute of Aeronautics and Astronautics.

The affair, to be held at El Cortez Hotel's Caribbean Room, is open to the public with tickets available at the door. Dinner is at 7:30 p.m.

R. C. Sebold, Astro vice president-research, development and engineering, will discuss "Astronautics' History, Accomplishments, Centaur Status and Overall Future." C. S. Ames, vice president and program director—SLV, will discuss "SLV Status and Future (FLOX)." Frank Zylius will discuss "MOL Status and Management Techniques." K. J. Bossart, technical director, will speak on "Several Basic Research Studies."

David H. Garber, Astro senior research scientist, is president of the local AIAA chapter.

Free Skating Party Scheduled at Plaza

To introduce prospective members to General Dynamics Ice Skating Club, the group will hold a free skating party at Mission Valley Ice Plaza, June 25.

GD/Astro, GD/Convair and GD/E folk may enjoy "private party" skating from 6:30 to 8 p.m., then continue skating until 10:30. Only cost is 35 cents for skate rental, if required. Refreshments are free.

A club membership booth will be set up at the rink to provide information on group activities. Currently, the club holds a private skating party, including free instruction for beginners and intermediates, each Thursday at 6:30.

Membership costs $1 per family per year, and members now pay half-price rates for the Thursday sessions.

Garden Show 'Family Affair'

General Dynamics Garden Club's summer show will be a "family affair" when the annual event is held next month for the first time in ARA Clubhouse east of GD/Astro's main plant.

Scheduled July 25 and 26, entries are being solicited from all GD/Astro, GD/Convair and GD/E employees and their families. Commissioner Everett Henderson said employees of GD/Pomona and General Atomic will also be invited to enter.

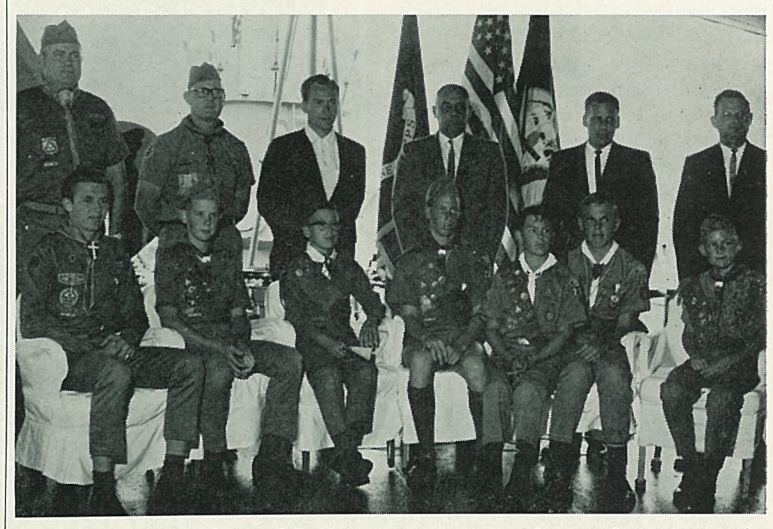
The show will feature 49 classes for dahlias, four citrus and deciduous fruit classes, eight classes for vegetables, 14 arrangement and corsage classes and two children's categories.

Diesen and Brending Speak on Computers

Carl Diesen, GD/Astro manager of scientific programming and analysis, and Dennis O. Brending, requirements engineer at GD/Electronics-SD, were speakers this month at a meeting of American Public Works Association, San Diego and Imperial Counties chapter.

Theme of their presentations was "What's New in Computer Techniques for Management and Engineering."

Diesen discussed the general scope of computer techniques and their application in engineering and administration, while Brending dealt with specific applications, including automatic drafting equipment.



PROMOTED—These GD/Astro sons were advanced to top ranks in Scouting in recent Court of Recognition held aboard USS Saint Paul. Pictured with their fathers are (from left) Thomas Werts, son of Al Werts, Dept. 130-1, and Warren Kolar, son of George Kolar, Dept. 142-2, advanced to Eagle; Gregg Wilson, son of Jim Wilson, Dept. 959-0, Alan Dunlap, son of Maurice Dunlap, Dept. 526-6, Dan and Jim Greenwald, sons of James Greenwald, Dept. 191-0, new Life Scouts; and John Miller, son of Jim Miller, Dept. 522-5, Star Scout. GD/Astro's Charles Tyler, Dept. 158-1, is advancement committee chairman for Balboa district.

Sports & Recreation

CRA Calendar

(Convair Recreation Association has some 30 activities in operation for Convair and Electronics people. For information call CRA Headquarters, ext. 1245.)

★ ★ ★

AEROMODELERS — Flying sessions Saturday and Sunday mornings, 8 a.m. to 1 p.m., Clairemont Mesa Flying Site.

CAMERA CLUB — Joint CRA-ARA meeting June 21, 7 p.m., Photo Arts Bldg., Balboa Park.

COIN CLUB — Regular meeting Thursday (June 18), 7:30 p.m., Convair cafeteria, Pacific Hwy.

FENCING — Workouts and instruction each Friday night, 7-10 p.m., YWCA, 10th & C Sts.

GARDEN CLUB — Joint CRA-ARA meeting July 1, 7:30 p.m., Floral Association Bldg., Balboa Park.

GUN CLUB—Registered ATA trapshoot June 28, Gillespie Field Range. CRA club shoot July 5. Open Troy trapshoot also July 5, 11 a.m. Registered skeet shoot originally scheduled June 21 has been cancelled.

ICE SKATING — Free skating party Mission Valley Ice Plaza on June 25. Thursday ice skating sessions for GD people, 6:30-8 p.m.

MODEL RAILROAD — Work nights, Fridays, 7:30 p.m.; open sessions, Sundays, 1-4:30 p.m., House of Charm, Balboa Park.

MOVIES — Reduced prices for General Dynamics people at State Theater, Euclid and El Cajon Blvd. General admission: adults, 75¢; children, 25¢.

PISTOL CLUB — Club shoot June 28, 9:15 a.m., San Diego Police Pistol Range, Federal Blvd. and Home Ave.

RADIO CLUB — Next meeting June 25, 8 p.m., Harbor Drive club headquarters.

RIDING CLUB—Desert campout June 21-22, Vallecito Stage Station. Meeting July 2, 7:30 p.m., Gillespie Field Clubhouse.

ROAD RUNNERS — Meeting tomorrow (June 18), 7:30 p.m., Gillespie Field Clubhouse. Outing June 19-21, Oak Grove Campground.

ROCKHOUNDS — Last workshop session for summer at lapidary shop, Gillespie Field, June 24. Meetings and instruction resume in September.

SOFTBALL — Shop "slow pitch" league games Thursday evenings, Central and Linda Vista fields.

SPANISH — Registration still open for CRA-ARA "tourist" Spanish course, Mondays, 7-9 p.m., Convair executive dining room, Pacific Hwy. Mexican tour meeting June 29, 6:30 p.m.

SPORTS CAR CLUB — Meeting July 1, 7:30 p.m., Convair cafeteria, Pacific Hwy.

SWIMMING — Free family swim night June 20, Mission Beach Plunge, 7-9 p.m. Tickets at employee services.

WATER SKI CLUB — Skiing weekends on Mission Bay. Call Gene Sevigny, ext. 1778, Plant 1.

Joint Bowling Tourney Slated

Convair and GD/Electronics Management Clubs are joining forces to set up a combined bowling tournament for the first time.

Dates for the GD/C-E Management Club Bowling League are from Sept. 14 to April 12.

Ten alleys have been reserved at Parkway Bowl, Mondays at 6:30 p.m. Special prizes and offers will be given by the bowl, including trips to Las Vegas, trophies for high games and top scores, discounts on equipment.

Eligibility is limited to members of either Management Club as of 1963.

Sign-ups, by either individuals or teams, are being taken now by Vic Baros, Convair, ext. 1515, and Dave Pearce, GD/E, ext. 1975.

Rockhounds Start Summer Vacation

CRA Rockhounds start the usual summer vacation, as far as formal club activities go, next week.

The lapidary workshop at Gillespie Field will be closed after next Wednesday night (June 24). That session will be the last work and instruction gathering until September, said Commissioner Dan Whorton.

All field trips and meetings are cancelled during the hot months of July and August. Next regular meeting will be the second Thursday in September.

Handicap of 71 Wins Tourney!

Sid Smith of tool engineering took GD/Convair Management Club's Memorial weekend fun links tourney by pure luck—bad luck on the six holes which established his handicap!

Smith's gross 124 in the "Mickey Mouse" match over Cottonwood course was pared down to a slim 53 net, after his 71 handicap was deducted. It was worth $10, which just about paid expenses, he said, including three lost balls.

Handicaps were established by the blind bogey Peoria system. Players used scores on six holes drawn from the hat.

Max Walden, also of tool engineering, won the $8 second award; G. K. Watson (Dept. 400) was third to win $6 gift certificate; and Al Rieder of machine shop got $3 for fourth place.

In the women's event over the short course, Wanda Rose of GD/E was first to take home a $5 certificate. Helen Miller, wife of Ralph Miller, was second and won $3; Florence Kell, wife of Terry Kell, meet chairman, was third for $2.

Altogether 56 men and half a dozen women turned out for the holiday tourney.

TUNING IN — Transistor radio gets once over and coffeemaker waits its turn during farewell party for V. L. "Vic" Allwardt, prior to his recent transfer from Edwards RS to GD/Fort Worth. Astro friends stand in background. All 61 Astro employees at Edwards RS turned out for affair.

GD/E, Convair Golfers Take Three Firsts in NMA Tourney

Four GD/E linksmen were in the money at windup of the two-day NMA Southern California District Golf Tournament June 6-7 over San Diego courses.

Bob Peterson stood first in the third flight with a net 138 for 36 holes. George Elmore shot a net 141 for second in the same flight.

Jim Thompson was in second spot in the seventh flight with 138. Paul Jepson, with a net 136, was runner-up in the eleventh flight.

First-place purses were $25 and second place was worth $15.

Ernie Paul was GD/Electronics Management Club chairman, coordinating participation of the 26 GD/E entries who played the Stardust and South Torrey Pines courses.

Special credit went to the dozen girls of the GD Women's Golf Club who volunteered their services in checking, tabulating, and posting scores at the various courses.

* * *

Of the 25 linksmen representing GD/Convair Management Club, two won firsts and two were in third place in their respective flights.

J. J. Jodka was low net in the sixth flight; Ernie Damarus, first in the ninth flight. Terry Kell was in third spot in the eighth and A. M. Van Horne, third in the 13th flight.

Gerry Cox was chairman of the GD/Convair arrangements, assisted by Kell and his wife, Florence.

GD/E Material Blasts Firemen

GD/E Material snowed Convair Fire Dept. in its opening game of the CRA slow-pitch softball season June 4 as it ran up a 15 to 1 score at Linda Vista.

In other first tilts Pre-War Personnel bested Hi-Lows 16-13 on the Central diamond and Accounting Beasts won over Convair Material 8-5.

Last Thursday GD/E Operations were matched against the Beasts. Hi-Lows played Fire Dept., and Convair Material was paired with GD/E Material.

Tomorrow night's (June 18) games are: Pre-War Personnel vs. Fire Dept. at 8 p.m. on Central playground field; GD/E Operations vs. GD/E Material at 6:45 p.m. and Hi-Lows vs. Convair Material at 8:20 p.m., both at Linda Vista. Beasts draw a bye.

LOMBARDO DEUCES NO. 10 AT TORREY

John L. Lombardo, GD/E general manager, had a once-in-a-lifetime thrill on the links when he drove an iron shot out of the rough to score an eagle on a par-4 hole in last month's GD/E golf tourney.

Called "rarer than a hole in one," the eagle was scored on South Torrey Pines 400-yd. No. 10.

His net 70 was good for top score in B flight. George Elmore shot a 67 net for first in A flight.

GD/E golfers planning to take part in the next club tournament June 27 at Carlton Oaks should get starting times before June 24 from Ernie Paul at GD/E Plant 2.

Be Careful! Don't Rush! Arrive Home Safely

GD/Convair and GD/Electronics people parking across Pacific Highway from Plant 1, and trekking to the new lots between Kettner and India Sts., are warned to be especially careful in making their way around the freeway construction areas.

Safety heads at both divisions, M. C. Val Dez of Convair and George Oatman of GD/E, say that it is imperative that all employees use designated sidewalks, walkways, and lined crosswalks.

They list other precautions to avoid risk of personal accidents: do not violate railroad right-of-way; do not climb up or down embankments; do not attempt to climb over or under railings or fences; be alert in parking areas as driver or pedestrian; don't rush—arrive at work and at home safely!

Fuel Simulated In Lewis Tests

CLEVELAND — It looks like any Atlas/Centaur/Surveyor, standing tall in its test tower, but its fuel tanks contain 35,000 gallons of water and 193,000 styrofoam balls!

This unusual combination simulates propellant weights during dynamics tests in progress here.

Water substitutes as RP-1 fuel and liquid oxygen in the Atlas vehicle and as liquid oxygen in Centaur. Styrofoam balls, not quite two inches in diameter, simulate the mass of liquid hydrogen in Centaur. The latter weigh 4,650 pounds. Gaseous nitrogen provides needed pressurization.

Tests are under direction of NASA's Lewis Research Center here and are being performed at nearby Plum Brook in what is called a Dynamics Research Testing Stand.

GD/Astronautics crews working under Chief J. E. Lauen are assisting in the test program aimed at proving capability of the launch vehicle-spacecraft combination to withstand flight pressures. A complicated system of stanchions and cables provide the crushing forces simulating Atlas/Centaur in flight and at launch. Two electromagnetic "shakers" add emphasis by shaking both vertically and horizontally while tests are in progress.

Gladys Story, Veteran Con-Trib Member, Honored

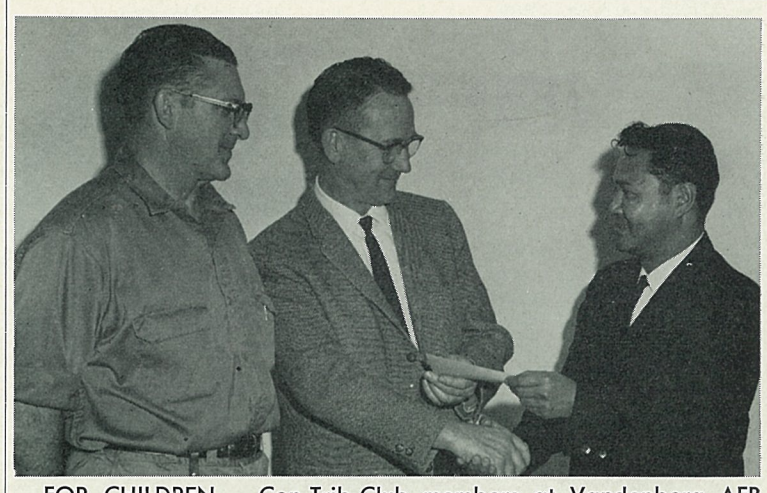
First plaque ever given by GD/Convair Employees' Con-Trib-Club Committee to one of its members was presented Gladys Story for her years of service.

J. K. Field, manager of personnel services and Con-Trib chairman, made the special presentation at the June 2 committee meeting.

Mrs. Story, who retired from Convair last month, was a charter member of the Con-Trib-Club committee as an IAM representative. She had served as treasurer of the group since it was formed 12 years ago. She had been with the company 20 years in fabrication.

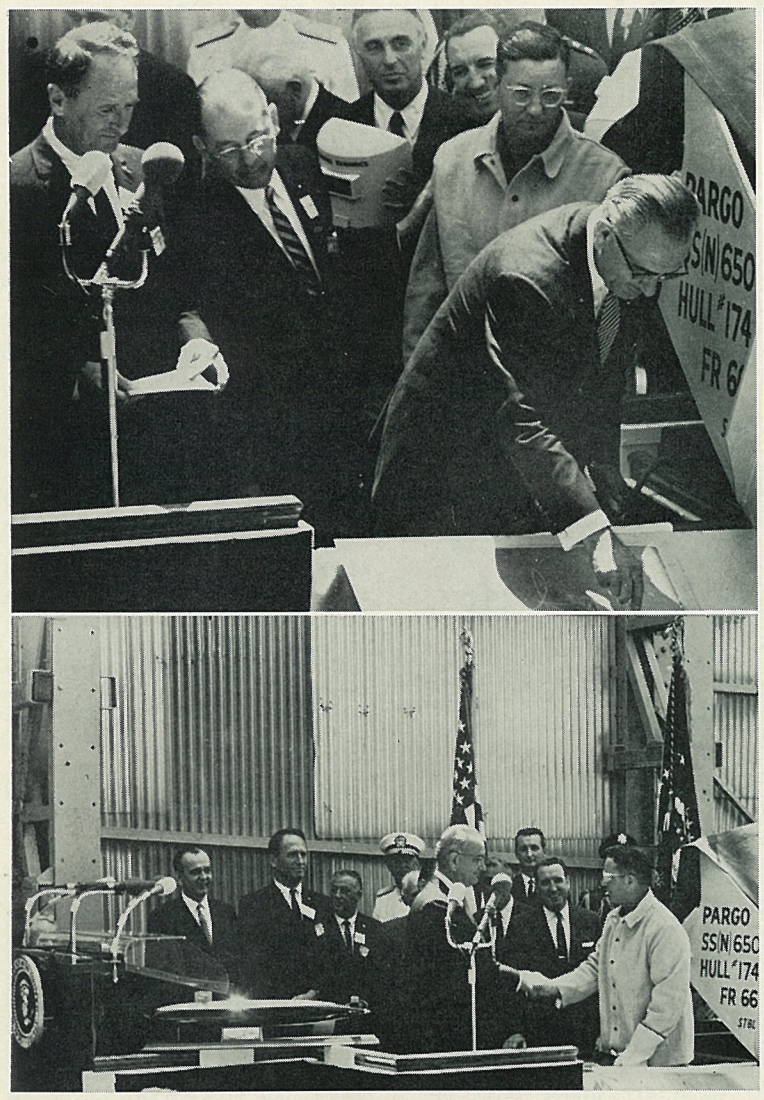
Other charter members, still serving on the Con-Trib committee, which directs the distribution of the division's philanthropic contributions, are W. A. Ebel, EAA representative, and E. E. Larsen, IBEW representative.

WELL DONE — Gladys Story, recently retired from Dept. 101, receives first Con-Trib plaque in appreciation of services from J. K. Field, Con-Trib chairman.

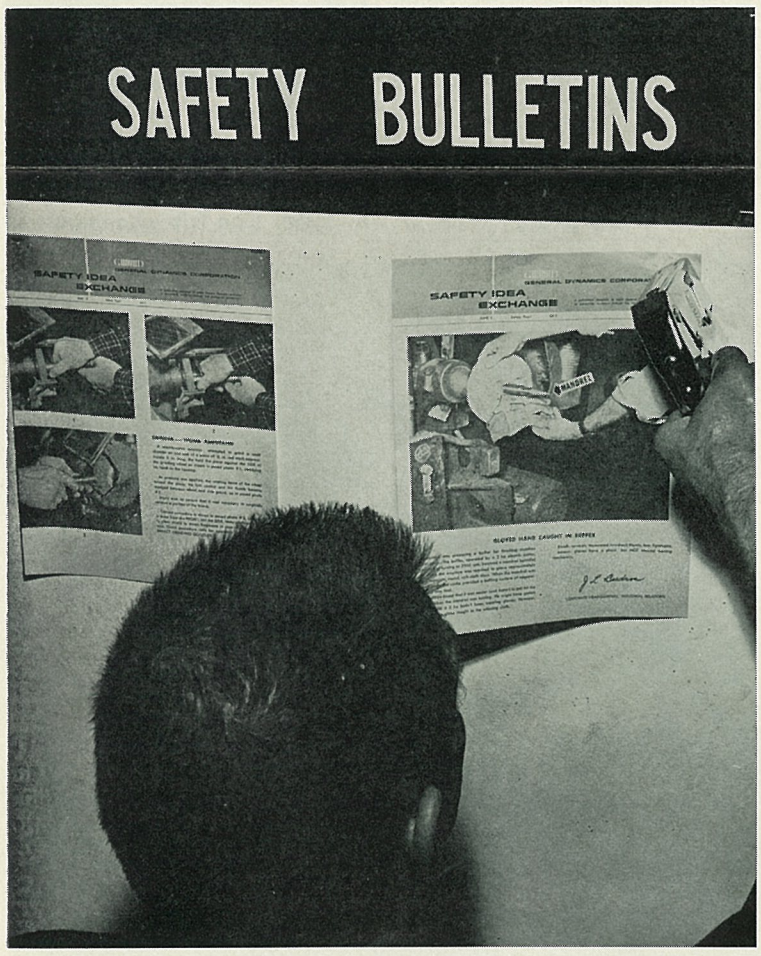


FOR CHILDREN — Con-Trib-Club members at Vandenberg AFB recently gave $1,000 to Santa Maria Council for Retarded Children. Accepting check, center, is M. E. Van Winkle, Council's building committee chairman. Presenting is Tony Estalio, while Bob Ihrig looks on. Estalio and Ihrig are members of VAFB Con-Trib-Club advisory committee.

GIFT OF MUSIC — Recent gift of GD/Astro Employees' Con-Trib-Club to Mesa Vista Mental Hospital, demonstrated here by J. C. McFall, Dept. 193, for Mrs. Betty Marts, left, hospital's director of volunteers; Charles DeNardo and Mike Alianelli, members of CTC board of directors. McFall entertains patients with two-hour concert each week as part of volunteer program.



PRESIDENTIAL VISIT — In top photo, President Lyndon B. Johnson chalks initials on keel plate of nuclear attack submarine Pargo during June 3 visit to General Dynamics' Electric Boat division at Groton, Conn. With him, from left, Roger Lewis, General Dynamics president, J. William Jones Jr., president of E-B, Senator Abraham Ribicoff, Herman Doughrity, welder who burned "LBJ" on keel plate. Lower photo: Doughrity shakes hands with President Johnson after completing welding job.



SAFETY TIPS — Typical of use at General Dynamics divisions, first two issues of "Safety Idea Exchange" issued by Corporate Office are posted on bulletin board. Publication, introduced last month, is designed as assist in Corporation-wide emphasis upon accident prevention.

F-111 UNVEILED — This model of variable wing F-111 was placed on display at annual meeting of Aviation and Space Writers in Miami last week. It attracted major attention among exhibits.

Mobility

Score Shift To New Posts

(Following are recent personnel transfers among General Dynamics division. In parentheses are dates when individuals joined the company.)

Arthur W. Bluder (1942) from GD/Convair to Astro engineering; **Daymon H. Graham** (1957) from Daingerfield to Fort Worth aerospace technology; **Richard W. Gall** (1961) from Convair to Fort Worth support requirements; **Walter D. Honeycutt** (1963) from Convair to Fort Worth advanced programs; **Heflin T. Parris** (1956) from Daingerfield to Fort Worth aerospace technology.

James E. Howe (1947) from Convair to Fort Worth structural design; **Edwin E. Creamer** (1949) from Fort Worth to GD/Electronics-Rochester's AN/GLR-1 site operations; **Daniel E. Bolin** (1952) from Astro (Abilene) to Fort Worth tool & operations planning; **Victor L. Allwardt** (1943) from Astro (ERS) to Fort Worth F-111 tests.

Harrison W. Millard (1940) from Convair to Fort Worth airframe design; **Francis A. Sisson** (1950) from Convair to Fort Worth structural design; **Joe B. Waggoner** (1964) from Astro (Abilene) to Fort Worth tool & operations planning; **Charles Raymond** (1953) from Astro to methods engineer at Electric Boat; **James C. Watkins** (1956) from Electronics-Rochester to senior design planner, Electric Boat; **William N. Taylor** (1956) from Convair to Fort Worth airframe design; **J. B. Braziel** (1949) from Astro to Fort Worth project coordination; **Walter T. Green** (1951) from Astro to Fort Worth machine shop; **Jerry B. Hattox** (1963) from Astro to Fort Worth airframe design.

★ ★ ★

Kunze Appointed To Corp. Staff

Conrad Kunze, a former assistant manager of GD/Convair division, has been appointed to the staff of R. M. Hatcher, Corporate director, operations service.

Kunze succeeds H. S. Wiseman as director, industrial engineering and operations support. Wiseman has been transferred to Fort Worth division as assistant factory manager.

Kunze, who attended Stanford University, was with Northrop Aircraft as superintendent of production and manager of material before joining Fort Worth division in 1956 as assistant chief tool engineer. The following year he was appointed industrial engineering manager and was transferred to San Diego in 1959. He left the company in 1961 to join Otis Elevator as assistant general manager.

★ ★ ★

Howard Wall Shifts To Position in NY

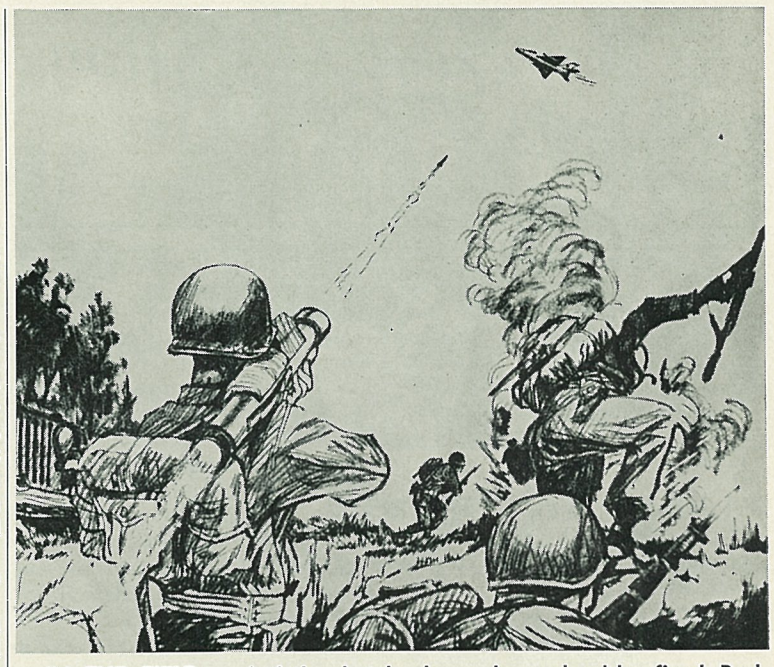
Howard E. Wall, formerly of GD/Convair accounting, has been appointed manager of consolidated accounting in the Corporate Office, reporting to Robison Clark, assistant comptroller.

A 1955 graduate of the University of Utah, Wall has been with Convair since 1956.

Weight Engineers Headed by GD Men

Installed as officers of San Diego chapter, Society of Aeronautical Weight Engineers (SAWE), at a meeting earlier this month were four General Dynamics men.

H. G. Mileur of GD/Astro is chairman, with GD/Astro's D. O. Nevinger, vice chairman, and F. L. Dohn of GD/Convair, treasurer. Other GD/Astro men play key roles in the society, including J. E. Muller, retiring chairman, who presided at the meeting, and H. L. Jensen Jr., continuing on SAWE's board of directors, who served as installing officer.



IN THE FIELD — Artist's sketch shows how shoulder-fired Redeye will be used by troops in field against enemy aircraft.

Maj. Gen. Zierdt

'It'll Be Love at First Sight When Redeye Reaches Troops'

Army plans to issue Redeye "right down to rifle companies" were told by Maj. Gen. John G. Zierdt, commanding general, Army Missile Command, in a speech last month at Aviation and Space Writers Convention, Cape Kennedy.

Maj. Gen. Zierdt

Redeye, now entering initial production at General Dynamics/Pomona, was described by General Zierdt as the one mobile battlefield air defense weapon that can "get all the way forward."

"I feel safe in predicting that this one (Redeye) is going to be a case of 'love at first sight' when it gets to the soldier," General Zierdt stated.

Redeye was described as a shoulder fired guided missile using an infrared seeker to home on the heat emitted by an aircraft engine. It weighs less than 30 pounds, can be carried anywhere a man can take a rifle, and fires directly from a disposable fiberglass launcher case that also serves as a carrying case.

General Zierdt pointed out that the Redeye gunner uses his eyes and ears to acquire the target. When it comes within range, and the missile's heat seeker has acquired the target, the gunner fires it by pressing a trigger. From the time it leaves the launcher, the missile is on its own. Redeye is effective against a wide variety of low altitude targets: light liaison aircraft, troop carriers such as might be used in hostile parachute drops, helicopters, attack aircraft, even jets.

"Redeye was a long time in development and as is normal in all weapon systems, we are still improving it," General Zierdt said. "But it is a prime example of a successful attempt to make the target's characteristics work for the defense—in this case the aircraft engine."

New Designations Assigned to Ranges

New designations for East and West Coast Air Force missile test ranges have been established. Astronautics conducts operations at both locations.

The Air Force Missile Test Center (Patrick AFB) at Cape Kennedy, Fla., has been redesignated the Air Force Eastern Test Range (ETR).

Air Force Space Test Center (Vandenberg AFB) on the California coast has been redesignated the Air Force Western Test Range (WTR).

Ordnance Men Hear Dynamics Speakers

Two General Dynamics employees appeared on the program of the American Ordnance Association recently at Dallas.

They were C. E. Nevitt of GD/Fort Worth, who spoke on "Yesterday, Today and Tomorrow," and Dennis Brending, GD/Electronics-SD, who appeared on a panel of "Advanced Technology in Autographic Presentation."

"Oh, there you are, Johnson! The collection we were taking up was for you."

GD

SAN DIEGO EDITION
(Serving GD/CONVAIR
and GD/ELECTRONICS)

GENERAL DYNAMICS NEWS

Vol. 17, No. 14 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, July 1, 1964

INSURANCE BRIEFING — Industrial relations administrators from six General Dynamics divisions gather at San Diego to hear details of improved group insurance plan going into effect for GD flat-salaried people. Present were Edwin McManus of GD Corporate Office; Dick Mitchell, Keith Sears, J. T. Schultz, Robert Young of Astro; J. K. Field and Ken Wulfemeyer of Convair; Jack Swank and George Oatman of Electronics - SD; Tom Croft of Fort Worth; Henry Anthony and Richard Germond of General Atomic; H. S. Naish and Ed Glasson of Pomona; as well as R. M. Darval, J. G. Richter, Holeman Grigsby of Aetna Life Insurance Co.

Improved Salaried Group Insurance Program Goes Into Effect Today

Substantially expanded and improved group insurance for non-represented salaried employees of General Dynamics/Convair and salaried employees of GD/Electronics-SD goes into effect today (July 1).

Basic life insurance has been increased from $8,000 to $10,000 with the Corporation paying the additional premium; additional amounts of low-rate life insurance are being made available.

Increased accidental death and dismemberment insurance is in effect, Corporation-paid.

A new life insurance disability feature has been added to the program.

Medical coverage for employees and dependents has been materially enriched.

Additional accidental death and dismemberment insurance can be ordered at an exceedingly low rate.

And, if a sufficient number apply, a new cash value life insurance provision will go into effect.

Highlights have been made available in a nine-page booklet previewing the program, which will be covered in greater detail in the new "Salaried Group Insurance Booklet" to be issued later. Explanatory meetings for all employees affected were conducted late last month with Corporate Office representatives taking part.

Enriched Insurance Part of Master Plan

Dramatic enrichment of General Dynamics' group insurance program for salaried employees is a continuation of an overall plan to make General Dynamics an even more attractive company to work for, Algie A. Hendrix, Corporate vice president-industrial relations, announced this week.

First major step was the vastly improved salaried retirement program (GD/NEWS, Jan. 15, 1964), recently approved by the Internal Revenue Service, which included many new benefits, as well as reduction by half of the employee contribution. This now has been followed by widespread group insurance improvement.

"General Dynamics intends to remain competitive, not only in the cost of our products but also in the Corporation's ability to attract and retain high caliber personnel," Hendrix added. "And we intend to continue in the vanguard with tangible demonstrations of forward looking personnel policies and practices."

General Dynamics Men Join In City School VE Course

Men from three General Dynamics divisions in San Diego, who had completed the first formal value engineering course ever offered in the San Diego city school curriculum, presented results of their teamwork before 100 members of the San Diego Chapter, Society of American Value Engineers, and local training specialists at the June 16 meeting.

Setting the theme of the "Value Engineering in Education and Industry" program were keynote speakers, Dr. R. S. Hamilton, San Diego Evening College director; who talked on the college role in value engineering, and James Thompson, GD/Electronics-SD director of operations, who discussed the role of value engineering in industry.

The value engineering course, given at San Diego Evening College, was patterned after General Dynamics training programs and was taught by George J. Bartolomei of GD/Astronautics. K. D. Fawcett, coordinator of technical education for SD Junior Colleges, was instrumental in initiating the training on a college credit basis.

GD value engineering specialists, including M. M. Reeder and Dan Macey of GD/Electronics-SD, and Everett Lindem of GD/Astronautics, were guest lecturers.

(Continued on Page 2)

Graphic Arts Class Starts At GD/Convair

An advanced technical writing class, "Fundamentals of Graphic Arts," is offered General Dynamics people this summer through arrangements by GD/Convair educational services and San Diego Junior Colleges.

The in-plant supplementary course, which started this week, is held Monday and Wednesday evenings, 4:30-7:30 p.m., in Room 8, Bldg. 14, Plant 1. L. L. Henderson is instructor. The course carries 3 units of college credit.

Although first session was this Monday, registration may be made by attending tonight's (July 1) or next Monday's (July 6) class meeting or by calling Wayne Turner, ext. 491, GD/Convair Plant 1. The course will be closed to new students after July 6, said Turner.

The nine-week course will extend through Aug. 26. It is a required course for students working toward an Associate of Arts degree in technical writing and an elective course for those working toward a Certificate of Proficiency in technical writing.

Prerequisites are Technical Writing 1, 2, 3, and 4, or permission of the instructor.

The course, formally labeled Technical Writing 8, covers graphic arts fundamentals to acquaint students with the planning and production, or procurement of graphic arts services used in preparation of technical and scientific publications.

'Crewloading' Used on C-141

A systemized production plan, set up for C-141 empennage operations at GD/Convair, is more than proving its worth, not only as a graphic picture for supervision and workers on the line, but as a cost reduction incentive to cut time—and dollars.

Known as "crewloading," the program spells out the number of hours alloted for each task on every component. Targets are compared against actual hours on the job. Thus, a day-by-day record is always at hand to show the assistant foremen just where they stand production-wise and how each workman is performing. Trouble spots, if any, can be spotted and corrected before they affect schedules.

Although crewloading, in various forms, has been employed at GD/Convair since 1943, first during production of the Convair-Liner series, then on F-102/F-106 programs, and to good advantage during 880/990 manufacture, the present system has been refined to meet specific needs of the C-141 sub-contract.

(A similar crewloading technique has been in use at GD/Fort Worth during B-58 production and, now, on the F-111 program.)

"Crewloading is the assistant foreman's plan recorded graphically with personnel assignments to provide each worker with a fair-share task, in accordance with a predetermined sequence, to assure the most effective utilization of manpower, material, and equipment," explained R. D. Marks, supervisor of manufacturing methods.

Manufacturing methods prepares crew load charts from information furnished by engineering design and interpreted by tool engineering into manufacturing and tooling sequences. Charts break down the total hours budgeted for a program into work sequences, assignments, and target hours for each task.

Manufacturing control schedules provide basic information for manufacturing span times which are interpreted by factory supervision and methods engineers into numbers and types of workers needed to support the schedule.

Crew load charts, 85 in all for C-141 assemblies and sub-assemblies, are placed in each affected area. They are adjusted as actual hours spent on the job show that targets can be reduced, either on the basis of the learning curve or as new methods streamline operations.

"Crewloading certainly stimulates efforts of our people to think up ways to meet and beat our goals," Frank Blair, factory superintendent, pointed out. "This makes it a double-edged tool—a well-defined road map for supervision and workers and a definite reason for cost improvement."

In fact, the C-141 area is breeding a healthy crop of steady suggesters who are coming up with new and realistic ideas to make the work go through easier and faster.

Weekly reports distributed to the factory, so far, show that targets are being met, and in many instances, beaten. Greater time savings are expected as the program progresses and workers, tools, parts are used to best advantage, Marks said.

MORRIS ELECTED BY GD/E MGT. CLUB IN CLOSE RACE

T. E. Morris took over the reins of GD/Electronics-SD Management Club as president at installation ceremonies last Saturday, June 27.

Morris, who won the post by a close margin over his three rivals, Clay Murdock, Al Degler, and Walter Orzechowski, was seated, together with other newly-elected officers, by outgoing president, D. A. Graybill.

He stepped into top club office from his position as second vice president during the club's first year.

Other GD/E Management Club officers installed at the dinner-dance held at Stardust Hotel were: Lou DiVincenzo, first vice president; Garrett McClung, second vice president; Len Hanson, secretary; and Ivan Kemper, treasurer.

George McGinley was chosen new member of the board of directors.

TARGET CHECK — Joe Miller, C-141 assistant foreman (at left), checks actual working hours spent on vertical stabilizer assembly against crewloading targets with Dale Marks, manufacturing methods supervisor; Paul Pearson, C-141 foreman; and Frank Blair, factory superintendent.

Convair Structures Laboratory Tests Strengthened B-26 Wing

A B-26 wing, which will become a part of the originally Douglas-built bombers now under modification, "flew" upside down in Convair's structures laboratory recently to prove its integrity.

Convair was testing the wing under a contract from On-Mark Engineering Co., of Van Nuys, Calif., which has been commissioned by the Air Force to modify the structure of the World War II bomber for increased gross weights. The wing itself has been structurally reinforced to carry fuel tip tanks and external armament pods. The basic loads, structural analysis, and modification design engineering were performed by Sedco and G. S. Rasmussen & Associates of Encino, Calif.

The strengthened wing, attached to a fuselage section, was static tested to failure to prove the design, said Ed Schiff, structures lab assistant group engineer.

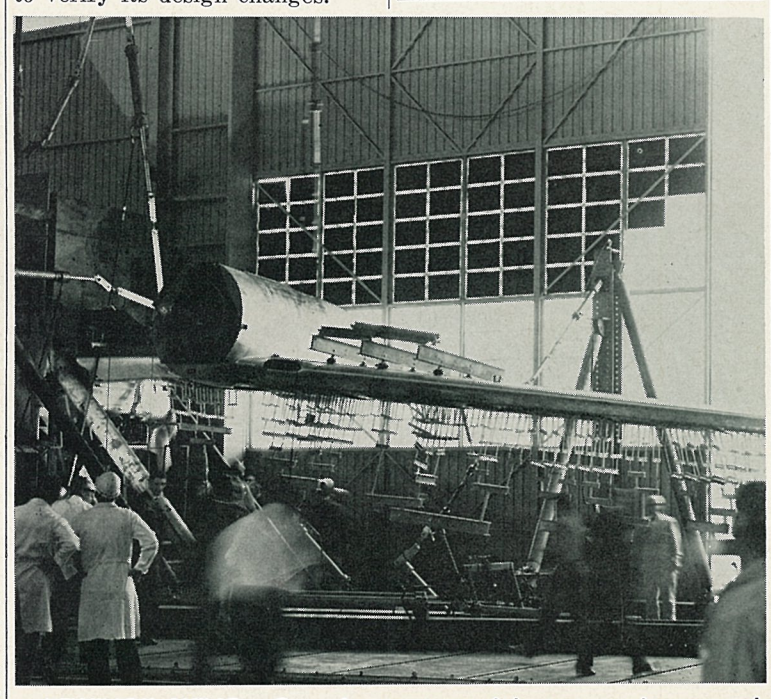
Failure came well above the ultimate requirement for safety margin. (Ultimate is established at one-and-a-half times the maximum load ever experienced in flight.)

The wing was mounted upside down in the fixture to facilitate hydraulic loading during tests. This made it possible to load the wing largely from the floor, and eliminated the necessity of a more complicated test setup for extensive loading from the ceiling, explained Dick Gilbert, test engineer in charge of the project at Convair.

During the actual test week, the wing was put through all critical flight conditions, including dynamic gust or rough air, maximum maneuver (fast and steep pull-outs), and low attack angle, as well as simulated landings.

The wing was instrumented with 95 strain gauges to check stresses in wing areas during each phase.

All information from the Convair static tests will be used by the Van Nuys engineering firm to verify its design changes.



"FLYING" WING—Convair structures lab test engineers rush up to examine B-26 wing when it reached failure point well beyond requirements set in recent static tests at ramp lab facility. Testing was done under contract from Van Nuys engineering firm modifying World War II bombers for Air Force.

Reaction Systems Contract Awarded

GD/Convair has awarded an additional contract for nine reaction control systems for Little Joe II launch vehicles to the Aerospace Division of Walter Kidde & Co., Inc., Belleville, N. J.

Convair is building Little Joe II vehicles for NASA for suborbital tests of the Apollo spacecraft.

Log Book Entries

Awards

CONVAIR

Employee Suggestion Awards approved for periods ending June 12 and June 19.

Dept. 27, L. F. Anderson and J. R. Brown, joint award, $5 each.

Dept. 101, Leo Budzynski, $69.90; L. V. Malody, $11.

Dept. 102, F. M. Baxter and J. Butera, joint award, $7.50 each.

Dept. 128, V. C. Breit, $18.70; E. G. Mize, $10.

Dept. 131, J. Darwell, $10.

Cost Improvement Proposals approved for the same periods.

Dept. 3, J. J. Jackson and Paul Veal, joint proposal.

Dept. 23, H. C. Zych.

Dept. 48, F. L. Moore.

Retirements

CONVAIR

COLE—Isabelle M., Dept. 14-8. Seniority date April 4, 1951, retired May 30.

CROSS—Walter P., Dept. 401-1. Seniority date May 21, 1941, retired June 14.

GOHS—Arthur C., Dept. 400-5. Seniority date July 5, 1950, retired April 14.

HOLMBERG—Maynard R., Dept. 14-5. Seniority date Feb. 1, 1941, retired May 30.

LYALL—Augustina B., Dept. 171. Seniority date Aug. 22, 1950, retired May 30.

McCAWLEY—John M., Dept. 14-4. Seniority date July 12, 1956, retired May 26.

McNAMARA—Denis P., Dept. 401-4. Seniority date Sept. 6, 1951, retired May 24.

PERDUE—John W., Dept. 292-1. Seniority date March 13, 1952, retired June 28.

UMBERHOCKER—Elva S., Dept. 201. Seniority date Dec. 12, 1950, retired April 4.

Births

BETTINGER — Son, Mark J., 9 lbs., 14 oz., born June 20 to Mr. and Mrs. Fred Bettinger, Dept. 2-3.

Electronics Wives To Lunch July 9

Monthly luncheon of GD/Electronic Wives' Club is set for Thursday, July 9, at Del Webb's OceanHouse, E. Mission Bay Drive, off Pacific Hwy.

The noon social hour in the Jolly Roger Room will be followed by a poolside luncheon at 1 p.m. Cost is $2.35, including tax and tip.

Club members are encouraged to bring guests.

Reservations must be made by next Monday, July 6, by calling either of the co-hostesses, Mrs. H. F. Johnson, 274-4148, or Mrs. A. D. Melvin, 284-4560.

Con-Trib to Repair Vauclain Home TVs

Televisions at San Diego County Tuberculosis and Health Association's Vauclain Home will be replaced and repaired through generosity of Convair Employees' Con-Trib-Club.

The $500 voted to the TB association at the June 24 Con-Trib meeting is earmarked for maintenance of television sets.

Another $500 was donated to San Diego Mental Health Association for support of its work in the area.

Buyers, Suppliers Gather at Forum For Small Business

More than 140 representatives of small businesses in the San Diego area turned out last month to take part in a "Space Age Buyers and Suppliers Forum" at the Sands Hotel.

GD/Astronautics, the Air Force, NASA, Chambers of Commerce, five other major aerospace firms and various governmental agencies staged the affair.

The forum brought businessmen together with procurement men from each of groups involved and served to assist in seeking future business.

H. E. Moose, Astro director of material, pointed out that during 1963 small business participated in 80 per cent of Astro's total procurement.

Astro offered specific help in cost reduction and value control, reliability, sub-contract management, formulation of bidding lists and pinpointed current procurement methods. A direct telephone line made it possible for participants to check their commodity listings on file with Astro and to make changes, if needed.

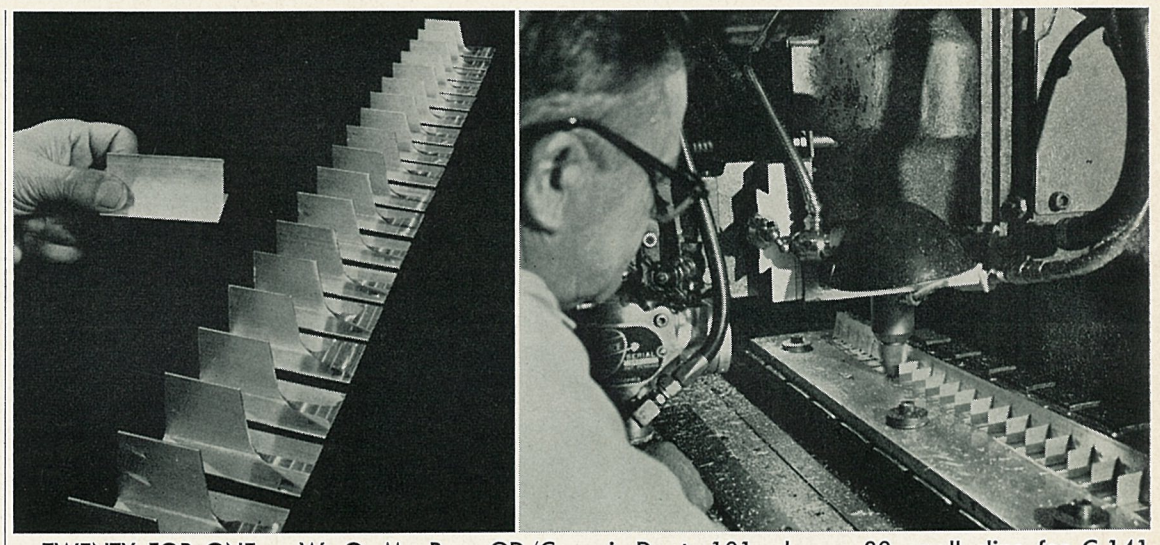
President J. R. Dempsey delivered the welcome address.

Winery Will Study Convair Techniques

Convair's value control techniques are moving into the field of liquid products with a recent order from E. & J. Gallo Winery, Modesto, Calif., for a set of the division's programmed instruction books.

Another inquiry from the Republic de Venezuela points up the widespread interest in Convair's value control program and its step-by-step method of training.

Over 600 sets of the five-book series have been sold to outside firms since the division's value control programmed instruction went on the market over a year ago, said H. P. Williams, Convair manager of value control.



TWENTY FOR ONE — W. O. MacRae, GD/Convair Dept. 101, shapes 20 small clips for C-141 leading edge at one whack on True-Trace milling machine in time it would take to form one on table router. Shot at left shows aluminum extrusion before shaping and 20 finished clips.

New Fixture Permits Forming 20 Clips in Single Operation

Twenty parts in little more than the time it used to take to make one, continues to be the theme song of Dept. 101 at GD/Convair.

Even small parts—when they add up to near 17,000—pile up plenty of manhours at a minute or two apiece.

That's how long it formerly took to route and sand smooth the small aluminum clips needed to attach ribs to the outer fiber glass C-141 leading edges.

Now, a new holding fixture has been devised to allow 20 of the clips to be formed at one time on the True-Trace milling machine in sheet metal department.

The True-Trace cutter is specially ground to shape the parts in one setup.

Counting setup time, 20 of the 3-inch aluminum extrusions can be smoothly cut in about five minutes, and they need no extra sanding to smooth out the mismatch for fitting them together.

Each C-141 ship's set requires 132 of the small clips to secure the internal rib supports of the leading edges, so that Dept. 101's current task amounts to shaping a total of 16,896 parts.

Convair Son Ranks High at Academy

Ronald Walrod, son of GD/Convair's Fred Walrod (Dept. 401), stood fourth scholastically in his class of 109 at graduation last month from the Coast Guard Academy, New London, Conn.

Ronald was on the honor roll throughout all of his four years at the Academy. He received his BS degree in engineering and commission as an ensign. He will go to Long Beach, Calif., in September for his first year's tour of duty.

He served as Regimental Commander during part of his last year and is a member of the Coast Guard Rifle Team now meeting other unit teams in competition throughout the country.

VE REPORT — Q. S. Reid of GD/Astro, one of two dozen GD men taking first college course in value engineering, reports on his team's project at June 16 SAVE meeting.

General Dynamics Men Join In City School VE Course

(Continued from Page 1)

Seven team leaders gave final reports at the SAVE meeting of workshop projects studied. Each project was an actual case study of hardware selected from local industries, including GD/Astronautics and GD/Electronics.

General Dynamics men taking the first college VE course were:

GD/Astronautics — Q. S. Reid, J. H. Huprich, S. Medrano, F. Mejia, C. F. Miller, J. Moore, S. Petrilli, R. Robledo, A. J. Rogers, H. N. Booker, J. A. Gamino, C. D. Jennings, L. E. Crossley, D. L. Kelly, C. V. Pereira.

GD/Electronics — D. J. Costelow, A. Hudjohn, J. A. Lederer, H. N. Saxton, H. D. Palmer, P. E. McCourt, M. M. Reeder.

General Atomic — J. G. Brogden, R. J. Wick.

MORE VETERANS — J. H. Famme congratulates second quartet of Convair men to complete 30 years service in last few weeks. They are, from left, C. F. Berger, Dept. 401-1; Frank Cary, Dept. 14-4; F. J. O'Connor, Dept. 14-6; Famme; and W. J. Gramse, Dept. 101.

General Dynamics NEWS

Published by General Dynamics Corporation, One Rockefeller Plaza, New York 20, N. Y.; with editorial headquarters at 3302 Pacific Highway, San Diego 12, Calif., P.O. Box 1950, telephone 296-6611, ext. 1071. Logan Jenkins, editor-in-chief.

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Affiliated editions of General Dynamics NEWS are published in Rochester, N. Y., covering GD/Electronics and Stromberg-Carlson, editorial offices, 100 Carlson Road, HUbbard 2-2200, ext. 2555. Fred E. Voss, editor; and at Groton, Conn., covering GD/Electric Boat, editorial offices at Groton, HIlltop 5-4321, ext. 300 and 513, Joseph Tracey, editor.

Looking Backwards

Triple Ace George Bostwick Recalls Downing Early Jet

Few World War II fighter pilots gained credit for downing a jet.

But George Bostwick did, and the GD/Fort Worth administrator-change planning recounted the event at a recent convention of American Fighter Aces Association in Dallas.

"This German jet was taking off from one of their long runways when I spotted him," Bostwick said. "I dived in and got him before he had much chance to climb."

Bostwick felt lucky. Admittedly, his 350 mph P-47 Thunderbolt would have been hard-pressed to escape the 550 mph jet.

"Fortunately," Bostwick added, "the war ended before many of these new jets were in service."

Bostwick, a triple ace with 15 aircraft to his credit, had many more tales to swap with his World War II cohorts.

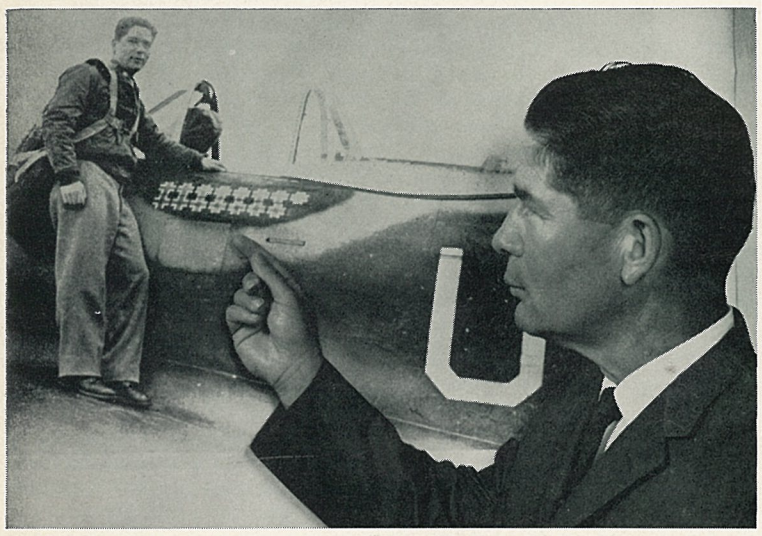
For his exploits, Bostwick earned the Silver Star, the Distinguished Flying Cross four times, the Air Medal 16 times, the French Croix de Guerre, and 10 other decorations.

Bostwick entered the service in 1941, after graduation from Ripon College in Wisconsin. He later received most of his pilot training in Texas—a locale he obviously still holds in high esteem.

After the war, he earned an aeronautical engineering degree, and later, a master's degree in business and industrial engineering from Stanford.

During his Air Force career, he served, among other places, at GD/Convair. He was commander, Air Force Procurement Region, Europe, at the time of his retirement last year.

Bostwick has logged over 4,000 hours flying time. With few exceptions, he has flown all aircraft in Air Force service during the past 20 years.



OLD TIMES — George Bostwick, GD/FW administrator-change planning, reminisces over photo taken when he became triple ace during World War II.

Chips Zip Away

Vacuum Device at Work Bench Keeps It 'Constantly Clean'

A newly-designed work bench at GD/Pomona is being evaluated to determine the advantages of a "constantly clean" work station for manual deburring.

"Built at nominal expense and of the normal height, width and length, the entire working surface of the bench is an open grid structure, coated to prevent damage to parts," J. R. Ewell, manufacturing engineer (Dept. 24), said. "The open surface allows dirt and chips to sift into a full-length sealed metal receptor below."

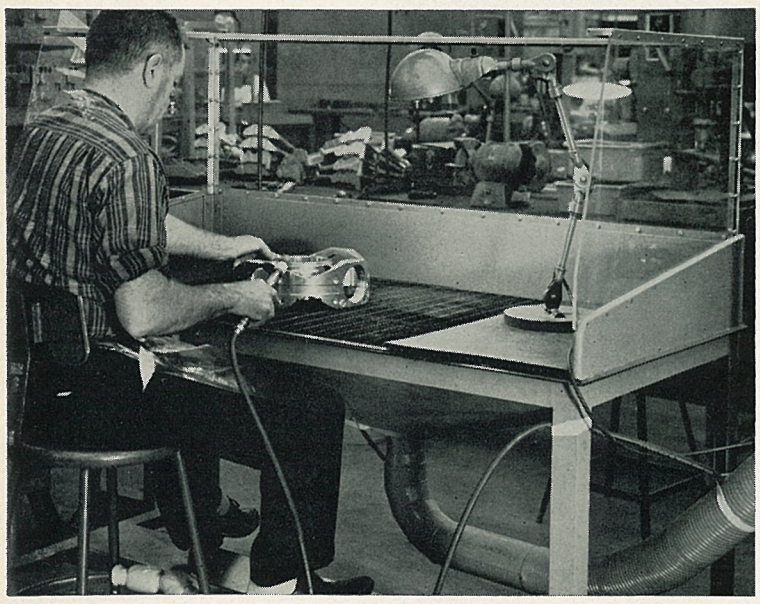
The ends and back edge of the bench are backstopped with a wood sill and plexiglas shields. A strong vacuum pull from a nearby dust collector draws away the dirt accumulating in the receptor chamber below the grid.

In addition, the vacuum provides a substantial air wash down through the grid surface with no accumulation areas for unwanted trash.

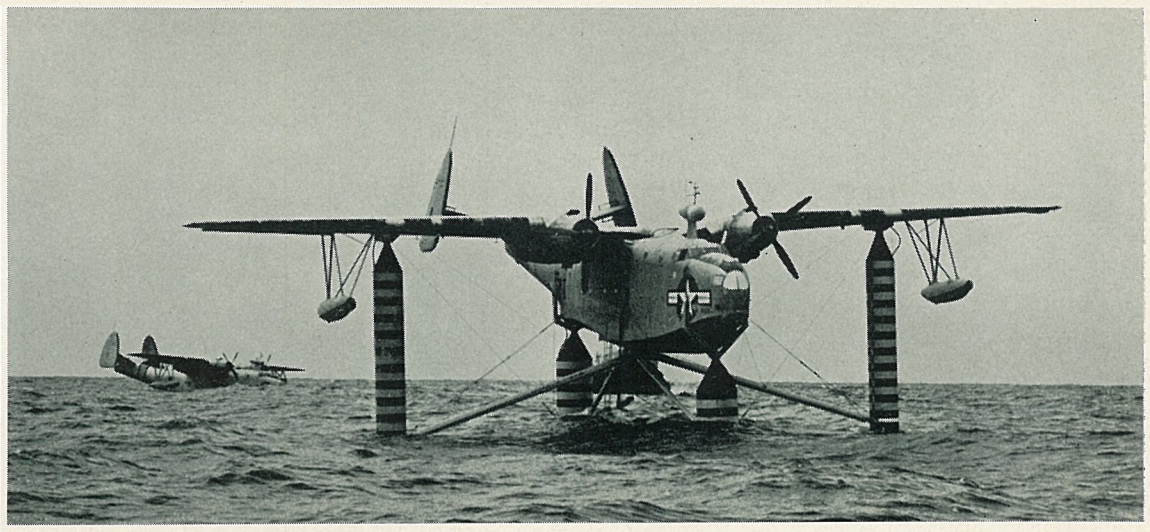
One notable advantage is that the open worktop of the bench holds no metal chips which could scratch otherwise good parts. The part also remains cleaner during the deburr operation and critical surfaces can be easily examined for small defects.

Another advantage is that the three-sided plexiglas shield reduces the hazard of flying particles from other work benches.

Despite certain bulk handling means or semi-automatic methods of deburring, it often is necessary to use the more expensive individual hand deburring. Many parts still must be finished by hand to eliminate sharp edges. When this is necessary, the GD/Pomona clean bench eliminates periodic brushing or blowing of chips onto the floor.



DEBURR BENCH — Operator W. W. Tenpenny (Dept. 51) deburrs missile part in evaluation of GD/Pomona's new clean deburr bench. Vacuum pulls air and dirt down through open grid of bench top.



STEADY — Navy PBM-5 rides smoothly above rough seas in final tests of vertical floats designed by GD/Convair. Crew aboard conventional PBM (left) were racked with seasickness as plane tossed in 10-foot waves while men aboard vertical-float seaplane were unaffected by motion.

Vertical Float System Success on High Seas

Final testing in heavy seas of the unique vertical float system developed by General Dynamics/Convair and the U. S. Navy have proved that a seaplane can operate as a stabilized vehicle on the open ocean.

Initial full-scale tests of the Convair float design were held successfully in relatively light seas off the California coast, near San Clemente Island, a year ago. (**GD/NEWS**, June 26, 1963.)

The vertical-float concept, originated by E. H. Handler of the Bureau of Naval Weapons, is termed a breakthrough for anti-submarine warfare aircraft. Convair began development of the floats under a Navy contract in 1962.

In the recent tests conducted in heavy seas off the San Diego coast a non-flying Navy PBM-5 seaplane was fitted with four of the Convair-designed floats. Floats under each wing are four feet in diameter and 40 feet long. The two under the hull measure five feet in diameter and 26 feet long.

During an eight-hour test period the plane rode virtually motionless above waves up to 10 feet in height. The crew monitored instruments that recorded data on pitch and roll motions, accelerations, wind velocity, and stresses on the float structure.

A second PBM, not equipped with floats, was stationed nearby for comparison. As the plane rocked in high waves, persons on board became seasick with the severe motion. Crewmen on the float-equipped plane carried out their duties without discomfort.

For test purposes, the floats were permanently fixed in position on the tug-towed seaplane. However, Convair has proposed an operational version to the Navy in which the floats would retract into the plane during flight and extend after landing.

The vertical-float PBM tests were conducted by Convair with the assistance of civilian and military personnel at North Island Naval Air Station, San Diego, and at the Sea Island Range (San Clemente) of the Naval Ordnance Test Station, China Lake, Calif.

Eleven From Astro In Graduating Class

GD/Astronautics was strongly represented in the current Law School graduating class at University of San Diego.

In addition to the seven law graduates listed previously (**GD/NEWS**, June 17), other GD/Astro employees receiving "sheep skins" were Fred Corbin, Dept. 196-0; A. A. Koch, Dept. 512-1; J. L. Gimbrone, Dept. 556-7, and P. J. Lynch, Dept. 660-6.

Electronics to Study Typewriter Project

GD/Electronics-Rochester, has received a contract from the U. S. Navy Bureau of Ships for research and development of a machine-language typewriter, with both tape-producing and tape-reading capabilities. The contract is for $530,000, and the project is now under way at the Goodman Street plant.

FW CLUB OFFICERS ATTEND SEMINAR

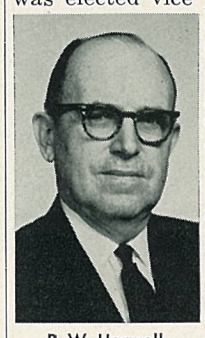
Three GD/FW Management Club officers attended the 105th Management Unity Seminar of the National Management Association in Dayton June 21-26. Attending were: F. B. Thompson, president; B. W. Parks, corresponding secretary; and J. R. Vaughan, chairman of management development committee.

KIERNAN NAMED STAFF ASSISTANT

Bernard W. Kiernan, formerly supervisor of consolidation accounting in the Corporate Office, has been promoted to staff assistant to Robison Clark, assistant comptroller. Kiernan, who graduated from Hofstra College, NYC, with a BBA, was with Arthur Anderson Co., before joining General Dynamics.

GD/FW Acct. Manager Wins National Office

R. W. Harwell, GD/Fort Worth manager of general accounting, was elected vice president of the National Association of Accountants at the group's annual conference recently in Washington.

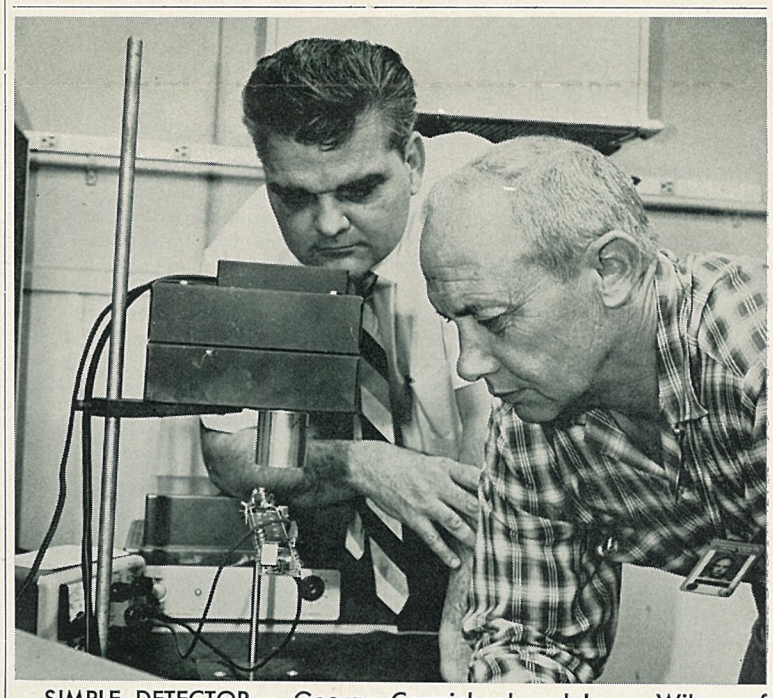


R. W. Harwell

Harwell is past president of the Fort Worth Chapter and has been active in the national association for several years. As vice president, he will be responsible for relations among 175 chapters in the organization.

He also has contributed a number of articles to NAA Bulletin.

In 1952 and 1954 he was awarded the William M. Lybrand Certificate of Merit for his contribution to literature for the advancement of industrial accounting.



SIMPLE DETECTOR — George Carmichael and Loren Wilson of Astro's Laser and optics group watch experimental model of new-type infrared sensor in action as it "examines" electronic parts for defects.

Economical Sensor Developed To Spot Electronic Defects

An economical infrared device to pinpoint defective electronic components before they actually become an integrated part of a complicated system in a space vehicle, for instance, has been developed by General Dynamics/Astronautics' Laser and optics group as an experimental model.

The infrared sensor is designed as an aid in the expanding field of precise electronic inspection, said George Carmichael, in charge of the project.

It acts as a camera to spot bad components in circuit boards and small electronic assemblies right at the assembly bench stage long before they can cause trouble in a system.

Defective resistors and transistors tend to give off more radiation — run hotter than the normal "body temperature" of perfect parts. The sensor's special lens of calcium fluoride, developed by Loren Wilson, optics specialist, is able to pick up and transmit radiation wave lengths from relatively low-temperature components, which ordinary optical material could not handle.

The lens concentrates radiation from the parts on a detector. Amplified signals then can either be observed on an oscilloscope or recorded graphically on an oscillograph. Increase in amplitude of signals indicates bad components.

Such a simple and easy-to-operate detecting device would be of great value in quality assurance of electronic assemblies, said Stan Logue, Laser and optics chief.

Others involved in the sensor's development included Glen McPherron, senior design engineer, responsible for the mechanical package; Art Hayward, GD/Astro Dept. 756 senior electronic development technician, who did the assembling and calibrating; Charles Baker, optician, who ground the special lens.

YOUNG MARKSMEN — General Dynamics' teen-agers competing in Astro Rifleers' junior teams show smart style and prowess on range at their first NRA registered tournament early last month. At far right is overall view of youngsters in prone position during competition. Center, Laura Farrelly, girls' coach, answers questions during break. At left are Shelley McGregor and Karen Miller, Convair daughters, both winners of ARA trophies, sighting at targets in standing match.

SCHOOL'S OUT — Astro and Air Force folk involved in one of 12 San Diego Evening College "Quality Control and Reliability" certificate and degree program classes line up on final night. W. F. Rice, right, is one of nine Astro men teaching courses. Four courses were taught on-site after work hours for 150 Astro and Air Force students.

GD/Astro Personnel Take Active Part As Students, Instructors in Quality

When the spring semester sessions of a San Diego Evening College "Quality Control and Reliability" certificate and degree program wound up last month interest was especially high at one point in particular.

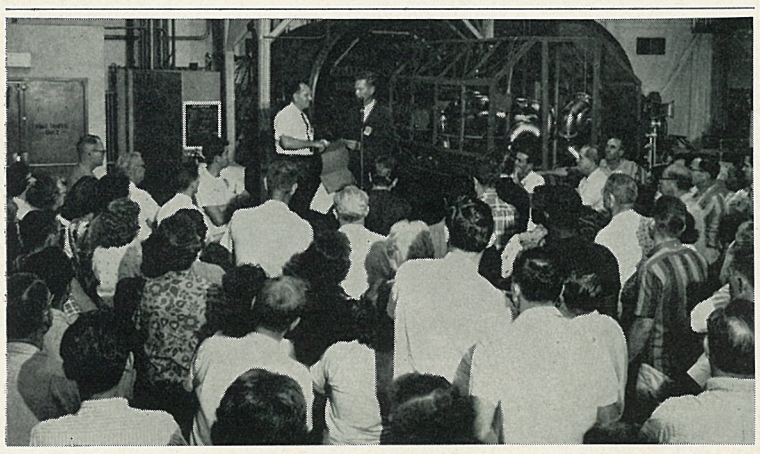
That's GD/Astronautics where reliability control and Air Force quality control personnel have been especially active.

Eight of the 12 courses offered were taught by GD/Astro instructors with four special classes held on-site at Astronautics after work hours.

Forty-four students (35 Astro; nine Air Force) took a "Quality Control and Techniques" course on-site. Three classes with a total of 106 students covered "Inspection Principles" and were also offered on-site.

Astro instructors in the program included W. F. Rice, W. Olson, I. L. Kemper, J. H. Rusk, M. R. Seldon, C. R. Blust, C. S. Thomas, F. S. Graham and G. J. Bartolomei.

This program is administered by a nine-member advisory council representing the Evening College, industry, U. S. Navy and U. S. Air Force operations in the area. D. E. Moore, chief of the AFPR quality control division at GD/Astro, is chairman of this Council. Astro members on the council are P. I. Harr, M. R. Seldon, C. A. Miller and W. F. Rice.



WELL DONE — Processing (Dept. 33) employees look on as President J. R. Dempsey, right on platform, presents May Craftsmanship award to General Foreman Merle Goodhart. Department showed 12 per cent improvement over previous production quality levels to garner top spot in Astronautics program.

Craftsmanship Award for May Earned by Dept. 733 Employees

Presentation of GD/Astronautics Craftsmanship award for May was made last month by President J. R. Dempsey to processing (Dept. 733) headed by General Foreman Merle Goodhart.

Dempsey praised the assembled Dept. 733 employees for their performance in marking a 12 per cent improvement over their previous production quality levels, and disclosed that during the contest period the department submitted 74,375 units for inspection.

Of these, only 116 were rejected!

A newcomer to the Craftsmanship competition ranked second in the May contest. This was Centaur final assembly and checkout (Dept. 972) which showed a 9.8 per cent improvement during the month.

The Craftsmanship competition is part of GD/Astro's division-wide effort encouraging employees to "Do Good Work." At present, 17 San Diego area departments participate, with four additional groups taking part in a separate contest at Vandenberg AFB.

Monthly winners receive a special Craftsmanship plaque, and display a large "Craftsmen of the Month" banner in their work area.

Salvage Yard Sales To Close on Fourth

There will be no salvage yard sales this coming Saturday (July 4) at either Convair or Astro plant.

Astro salvage yard at Kearny Mesa will be open for employee sales next Saturday (July 11) from 8 a.m. until noon and the Convair salvage yard at Plant 1 will be open July 18.

Helix Speaker Club Earns Nomination

Mount Helix Toastmasters Club, which includes 17 General Dynamics members, has been notified of its nomination for Toastmasters International's "Club of the Year."

For the past three years the club has won the District 50 "Club of the Year" award.

Executive committee members for the period covered by the nomination included General Dynamics employees Seymour Zeenkov, Jack Fisher, Glenn Vail, Warren Marsh, Durwood English and Roy Penney.

Mackley Will Head Systems Chapter

John R. Mackley, GD/Astro supervisor in divisions systems, has been named president of the San Diego Chapter, Systems and Procedures Association.

Norman Rubin of Astro is the new treasurer, while James E. Rutledge of GD/Electronics-SD and Bernard S. Gamson of Astro are new directors.

The group meets the first Tuesday of each month at the Marine Corps Recruit Depot and is open to all interested employees, Mackley said.

Accountant Chapter Elects L. G. Facka

L. G. Facka, GD/Convair assistant supervisor of accounting, was elected an associate director of the SD Chapter of the National Association of Accountants at the June 9 meeting of the board of directors.

Facka will serve as associate publicity director of the 500-member chapter. Two GD/Astronautics men, L. F. Moeller and J. R. Paulson, are members of the chapter's board.

Discarded Clothing Sought For Drive

General Dynamics people are urged to gather their discarded clothing and other articles for the annual spring salvage drive now being conducted by the Volunteers of America.

All used clothing, shoes, furniture, appliances are cleaned, repaired, and distributed to needy families.

Donors may have items picked up by calling 232-3095.

COUNTY SEEKS FOSTER HOMES

General Dynamics families with room in their homes, and hearts, for children are asked to join the foster home program of SD County's Dept. of Public Welfare. Every month 100 to 150 children need a foster home and many are waiting for placement. Anyone interested is asked to call the welfare department, phone 234-8871, ext. 245.

Junior Rifle Club Members Outpoint Senior Squad in Shoot

Young sharpshooters in Astro Rifleers' junior rifle club, made up of General Dynamics' teen-agers from Astro, Convair, and GD/E, are besting their elders after only a few months at the sport.

The junior rifle group, now numbering some 75 youngsters from 10 to 19, was organized under ARA auspices the first of the year and held their first competitive match in March.

"These youngsters have won 5 out of 8 team matches, plus many individual honors, and we're all mighty proud of them," said Astro's Dave Farrelly who coaches the Gold Squad, top scoring team.

In fact, they have progressed so rapidly that the four boys making up the competitive squad outpointed ARA's senior rifle team in IRC competition June 21 by a healthy margin.

The juniors scored 1,428 in a 50-yd., 3-position, 40-shot match to garner the large permanent challenge trophy for Astro and win individual belt buckle trophies for themselves.

Team members and individual scores were Richard Ellis, 376; John Tramposh, 346; Terry Farrelly, 354; and Robert Eaton, 352.

ARA seniors had to be content with second spot with 1,399 points. Their individual scores were Commissioner Bob Andrews, 337; Bill Prentiss, 347; Fred Jacobsen, 353; Ed Rosemann, 362.

The day before, June 20, juniors downed Camp Pendleton's junior team 1,759 to 1,650.

And, in the San Diego Junior Regional Rifle Tournament held the first weekend of last month (June 6-7) Astro Rifleers' juniors fielded three squads to take first and second in sharpshooter class and 8 of the 34 awards presented by ARA as well as one National Rifle Association award.

Robert Eaton won the NRA award for high score in sharpshooter class.

Two Convair daughters, Karen Miller and Shelley McGregor, shot themselves into top spots for ARA awards. Karen, 12, placed second in girls' overall scores in prone position. Shelley won first in both sub-junior prone and sitting competition.

An Astro daughter, Naomi Graudums, shooting with Poway Gun Club, was NRA overall high sub-junior.

Members of the three teams competing with juniors from 7 other county teams were: No. 1—John Tramposh, Robert Eaton, Bill Crosthwaite, David Farrelly Jr.; No. 2—Richard Ellis, Ronald Hill, Don Cognato, Terry Farrelly; girls—Karen Miller, Shelley McGregor, Peggy Bolton, Janice Smith.

Assistant juniors' coach, Ivus Ellis of Astro, supervised the boys' teams, while Laura Farrelly coached the girls. Other GD men acting as officials were Farrelly, official NRA referee; Rosemann, executive officer; V. Graudums, chief range officer; and Dick Zeich of Convair, chief statistical officer.

So many boys and girls want to join the rifle club that there are not enough adult instructors to go around, said Bob McGregor and Martin Miller, both of Convair, who head up the coaching staff.

A second platoon is being formed now and all interested GD people can be used in some capacity. People who have had previous experience in rifle instruction are urged to offer their services. However, all volunteers, with or without experience, are needed and will be given a course in basic marksmanship so they can assist full instructors on the range.

All interested are asked to contact Miller at ext. 715, Convair Plant 1, home phone, 276-4208; or Joe McLaughlin at Astro main plant, ext. 1513.

IRC Trapshoot Won by Astro

An Astronautics team topped the annual IRC trapshoot June 14 at Convair's Gillespie Field Range to take home the perpetual trophy.

Seven five-man squads representing San Diego members of the Industrial Recreation Council, and a visiting team from Los Angeles, competed in perfect weather conditions at the meet.

Members of the leading Astro team, who scored 230 out of a possible 250, were George Anderson, George Harbaugh, John Beamer, Don Walsh, William Reid.

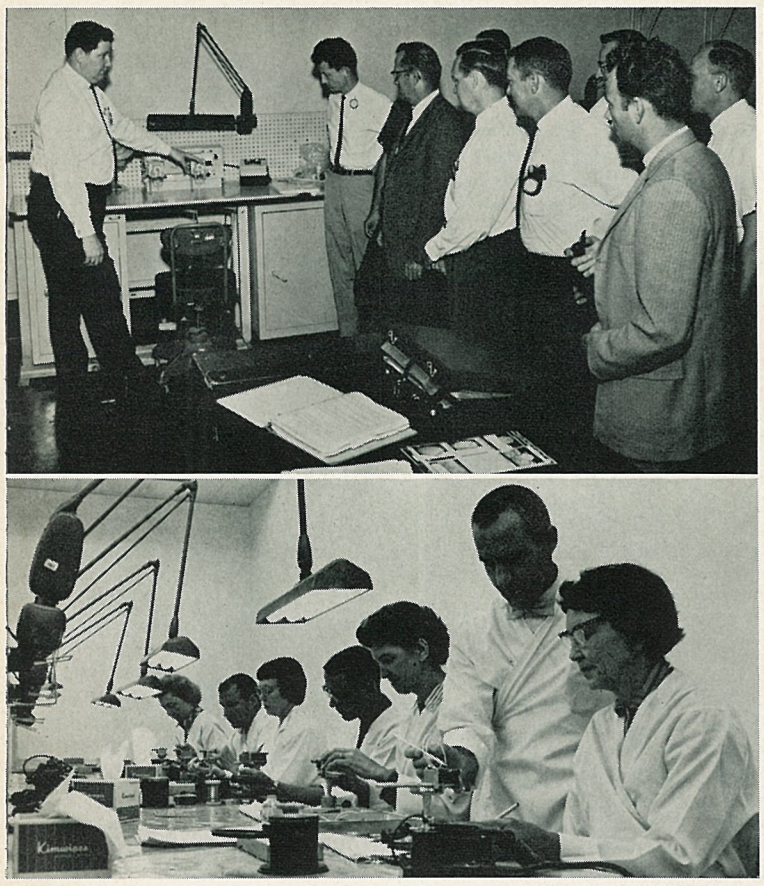
Runner-up in the trapshoot was the Solar team, scoring 226. Convair's entry was third; North American Aviation from L.A., fourth; GD/Electronics, fifth; Astro, sixth; Solar, seventh; Ryan, eighth.

The visiting North American team led skeet competition and was awarded identical trophies as the Convair team, which stood first among San Diego contestants. Members of both teams received engraved bronze belt buckles, as did individuals on first and second teams in trapshooting.

Convair team members were Jim and Stephen Field, Bill Rickman, Gregg and Cleo "Red" Pharis.

Other skeet teams and their standings were: Rohr, third; Astro, fourth; Solar, fifth.

A busy day is in store for sharpshooters at the CRA range this coming Sunday (July 5). CRA members will hold their usual monthly club shoot and an open Troy-type trapshoot is set for 11 a.m.



TECHNIQUES UPDATED — GD/Electronics - SD people increased technical competence in two special courses last month. At top, Paul Williams, training specialist, explains latest module welding processes in 50-hour course for key personnel in actual production of electronic packages. Below, Dick Davis, NASA certified instructor, supervises GD/E soldering school for six from electronic assembly and inspection.

Space Age Soldering, Welding Taught Selected GD/E Class

Two separate courses in latest soldering and welding techniques to meet space-age requirements were conducted last month for selected GD/Electronics-SD people.

Ten men from engineering, production engineering, operations, reliability and quality control spent 10 to 12 hours a day in a five-day welding school to learn latest processes in the module welding field while another six GD/E men and women from assembly and inspection were certified in a NASA soldering school.

The welding course, arranged through GD/E production engineering, was taught by Paul Williams, training specialist from Sippican Co., of Marion, Mass., leader in welding equipment manufacture and training.

According to J. P. Morris, manager of production engineering, it is imperative that present-day electronic companies keep abreast of new developments, especially as they apply to miniaturized electronic packaging.

Critical demands of outer space environment—extreme temperatures, pressure, vibration—require the ultimate in joining components that make up the tiny electronic devices serving as the eyes, ears, and brains of space vehicles.

The Sippican course covered all phases of advanced electronic packaging techniques from design aspects of laying out components, through refined welding processes and quality methods to determine optimum joints to encapsulation, or the enclosure of packages in plastics.

Taking the crash program were E. M. Starkweather, C. M. Tschiderer, R. L. Helton of production engineering; W. C. Dossey, J. L. King, J. M. Lasley of engineering; K. C. Schaefer of operations; G. S. Elmore, J. A. Lederer, and D. D. Olson of reliability and quality control.

The NASA 40-hour soldering school, last to be held until this fall, was instructed by Dick Davis of quality assurance, NASA certified instructor.

So far, 60 GD/E electronic assemblers and inspectors have been certified in in-plant classes to NASA's high soldering standards. Twenty-three of these were qualified and 8 requalified since the first of the year. NASA requires that all electronic assemblers be requalified every year in shorter brush-up courses to maintain their NASA certification.

Graduating from the June class were Nita Sylvester, Lorraine Zaragoza, Betty Eleas, Karl Schaefer of Dept. 72, Mathilde Knowles and Darwin Olson of Dept. 33.

SERVICE HONORS — Roger Lewis, president of General Dynamics Corporation, recently presented service pins to his two secretaries. At right is Mrs. Ray Joseph, who received ten-year emblem, and at left is Miss Corinne Paul, who received five-year pin.

CRA Calendar

(Convair Recreation Association has some 30 activities in operation for Convair and Electronics people. For information call CRA Headquarters, ext. 1245.)

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AEROMODELERS — Flying sessions Saturday and Sunday mornings, 8 a.m. to 1 p.m., Clairemont Flying Site.

CAMERA CLUB — Joint CRA-ARA meeting July 12, 7:30 p.m., Photo Arts Bldg., Balboa Park.

FENCING — Workouts and instruction each Friday night, 7-10 p.m., YWCA, 10th & C Sts.

GARDEN CLUB — Joint CRA-ARA meeting tonight (July 1), 7:30 p.m., Floral Association Bldg., Balboa Park. Annual Dahlia Show July 25-26.

GOLF — Entries open today (July 1) to July 6 for CRA tourney at Bonita Valley CC on July 11. Call ext. 1705, Plant 1.

GUN CLUB — Troy trapshoot and CRA club shoot July 5 at Gillespie Field Range.

ICE SKATING — Thursday ice skating sessions for GD people, Mission Valley Ice Plaza, 6:30-8 p.m.

MODEL RAILROAD — Work nights, Fridays, 7:30 p.m.; open sessions, Sundays, 1-4:30 p.m., House of Charm, Balboa Park.

MOVIES — Reduced prices for General Dynamics people at State Theater, Euclid and El Cajon Blvd. General admission: adults, 75c; children, 25c.

PISTOL CLUB — Next club shoot July 12, 9:15 a.m., San Diego Police Pistol Range, Federal Blvd. and Home Ave.

RADIO CLUB — Next meeting July 9, 8 p.m., Harbor Drive club headquarters.

RIDING CLUB — Meeting tomorrow (July 2), 7:30 p.m., Gillespie Field Clubhouse.

ROAD RUNNERS — Weekend outing to O'Neill Park July 10-12. Regular meeting July 16, 7:30 p.m., Gillespie Field Clubhouse.

SOFTBALL — "Slow pitch" league games every Thursday evening, Central and Linda Vista fields.

SPORTS CAR CLUB — Meeting tonight (July 1), 7:30 p.m., Convair cafeteria, Pacific Hwy.

WATER SKI CLUB — Skiing weekends on Mission Bay. Call Gene Sevigny, ext. 1778, Plant 1.

Feminine Golfers Play Balboa July 11

Lady golfers of GD/E and Convair will tee off at 9:30 a.m. at their monthly tourney slated July 11 over the Balboa nine-hole course.

Following the round of golf girls will meet for 11:30 a.m. luncheon. New officers of the GD Women's Golf Club will be installed and committees appointed.

All planning to play in the tourney or attend the luncheon are to call Mary Ransom at her home phone, 278-1913.

Winners of the June 13 match at Fletcher Hills were Joan Liggett of GD/E, first flight, and Clella Beauregard of Convair, second flight.

Exchange Tickets To 'Abner' on Sale

Theater-goers at Convair and GD/E have only a couple of days to take advantage of the reduced price arranged through CRA for IRC night performance of "Li'l Abner" at Circle Arts Theatre.

Exchange tickets, available at employee services, are good only for the July 7 presentation.

They must be exchanged for reserved seats at Circle Arts box office two days before the performance. With the tickets, $4.50 seats are reduced to $3.15 and $3.75 seats to $2.60.

COIN CLUB SETS JULY 16 MEETING

CRA coin collectors have a chance at two raffle prizes at their July 16 meet, a 1954 proof set worth about $33, and a B&D grading book. Fifteen new members have joined the club recently.

Sports & Recreation

Place Entries Now For Bonita Sweeps

Entries open today (July 1) for CRA's next golf tourney to be held Saturday (July 11) at Bonita Valley Country Club.

Deadline for getting starting times is next Monday (July 6), said Ken Wulfemeyer, CRA commissioner. Call ext. 1705, Plant 1.

Astro's Team Wins in Shoot

Astro's No. 1 team won the annual Industrial Recreation Council pistol shoot hosted June 14 by CRA Pistol Club at the San Diego Police Pistol Range.

The winning four-man team scored over Astro's No. 2 team by 9 points. Team No. 1 had aggregate score of 1,154 out of a possible 1,200. Astro team No. 2 was runner-up out of the 14 teams competing with a total of 1,143.

Members and individual scores of the two top teams were: Astro No. 1—Al Schindler, 289; Roland Schneider, 290; Warren Ranscht, 285; Ralph Sanderlin, 290. Astro No. 2—Harry Black, 283; Roscoe Anderson, 292; Don Smock, 289; Bill Geopfarth, 279.

NAS team from North Island stood third with 1,133.

Of the 14 teams entered 5 were from Astro; one from Convair; two from NAS; two, NEL; two, County Employees, and one each from Solar and Pacific Telephone.

Shooting for Convair were Jim Halfacre, Joe Williamson, Dale Young and Warren Walker.

Club Offering Discount Seats

A block of 400 choice seats to the July 17 Padres home game with Portland's league leaders has been reserved by Convair Management Club for General Dynamics ball fans.

The reserved box seats will be sold at discount price of $1.25 as long as they last. Tickets may be purchased by any General Dynamics person, whether member or not of the Management Club, at Convair employee services, Bldg. 32, Plant 1.

They are available also from all Management Club Boosters in the plant.

Deadline for purchase of tickets is Tuesday (July 14).

Sportsfishing Boats Offering Discounts

Anglers at Convair and GD/E may try their luck on San Diego area sportfishing boats at discount prices with exchange tickets now available at employee services.

Both Seaforth Landing and Mission Bay Sportfishing offer $1 discount on deepsea fishing excursions with the IRC tickets.

Loyola Students Take Quiz in Convair T-29

A Convair built T-29, used by the Air Force for flight training, became a flying classroom in reality for two young AFROTC cadets recently.

The two, students at Loyola University, Los Angeles, received permission to take their college philosophy exams aboard the T-29 rather than cancel out on a field trip to Ames Research Lab at Moffett NAS.

Both "lofty" papers received A grades.

CRA Busload to See Major League Game Saturday, July 11

CRA's first bus trip to a major league ball game last month was so successful that another has been arranged for a week from Saturday (July 11), announced Pete Beyrer of CRA headquarters.

Fathers are urged to sign up for themselves and sons or daughters to take in the Los Angeles Angels game with the Chicago White Sox that day.

Price of transportation and game is $5.25 each. Seats will be reserved for the first 40 to call CRA headquarters, ext. 1245, Plant 1, said Beyrer.

Payment must be made at employee services, Bldg. 32, Plant 1, by next Wednesday (July 8).

The chartered bus will leave the Bldg. 19 executive parking lot at 9:30 a.m. and return around 6:30 the same evening. Game time is 1 p.m.

No refreshments will be served on the bus and no stops will be made either going or coming. Sandwiches and drinks will be available at the stadium.

Road Runners Slate Outing

CRA Road Runners will travel to O'Neill Park, 14 miles from Capistrano turnoff on Hwy. 101, for their mid-summer outing this month.

Bob Kramer is in charge of arrangements for the July 10-12 campout as wagonmaster with Bill Branch assisting.

Rest rooms, water hookups and plenty of trailer space is available at the park. Maps with detailed directions will be sent members.

Six units joined in the Convair group's trip to Oak Grove campground near Warner Hot Springs over the weekend of June 19-21. Twenty-six attended the Saturday potluck.

Next regular meeting of the trailer club will be Thursday (July 16), 7:30 p.m., at Gillespie Field Clubhouse.

Pre-War Personnel, Operations Win

GD/E Operations and Pre-War Personnel have won both their first games in "slow pitch" softball play and GD/E Material has a 2-1 record in first three weeks of the CRA tourney.

GD/E Operations beat the Beasts 8 to 2 on June 11 and went on the next Thursday night to shade GD/E Material, 11-9. Fire Dept. took a close one from Hi-Lows 4-3 in other June 11 games. GD/E Material downed Convair Material 10 to 5.

In June 18 tilts Pre-War Personnel bested Fire Dept. 6 to 5, and Hi-Lows defeated Convair Material 14-11.

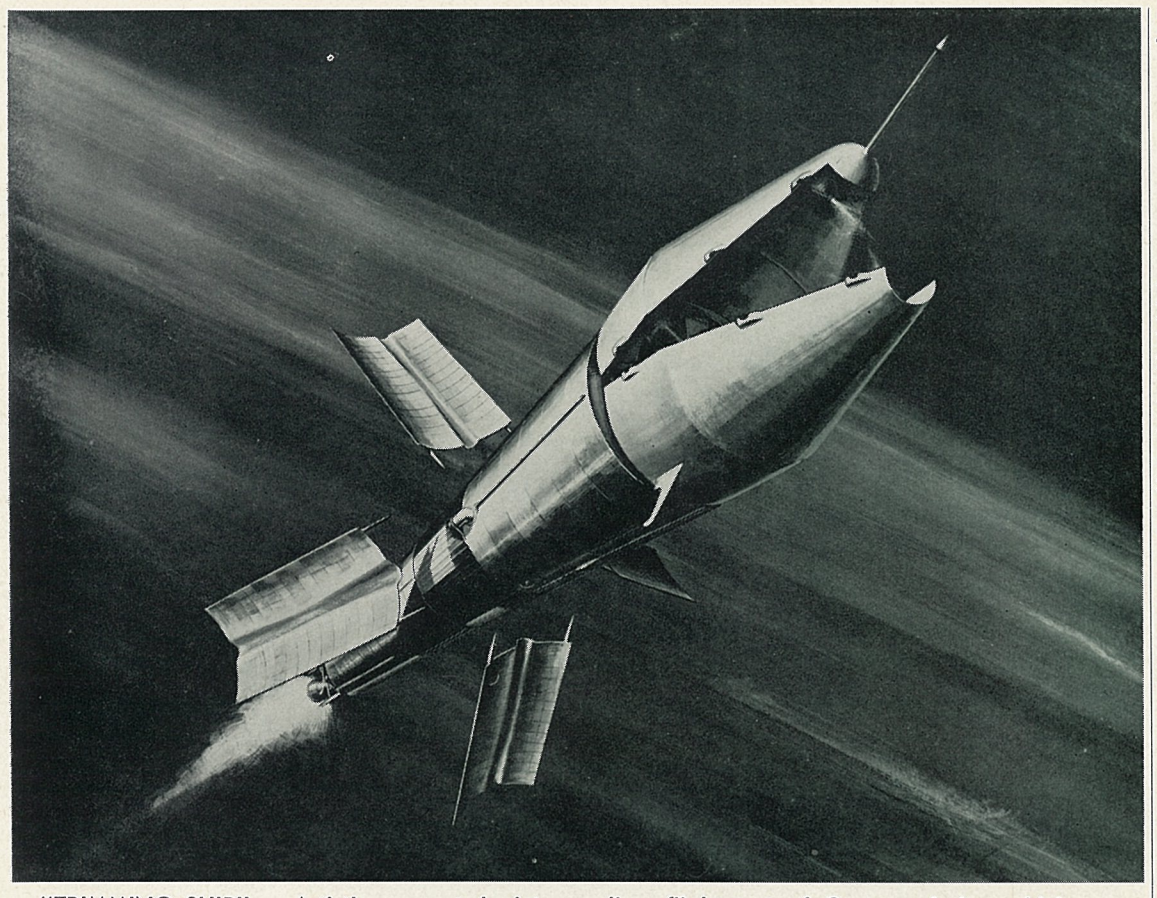
Tomorrow night's (July 2) schedule will see Pre-War Personnel meeting GD/E Operations at 8 p.m. on Central playground diamond. Fire Dept. plays Convair Material at 6:45 p.m. at Linda Vista. Beasts play Hi-Lows at 8:20 p.m. on the same field. GD/E Material draws a bye.

Discount Tickets To Fair Offered

A few discount tickets to the San Diego County Fair at Del Mar are still on hand at Convair employee services.

This year's fair will wind up this Sunday (July 5).

Adult tickets, good for any day, are 75 cents, a 25-cent reduction of regular admission charge.



"TRIMMING SHIP" — Artist's concept depicts pending flight test of Centaur during which space vehicle jettisons protective insulation as it leaves earth's atmosphere en route to orbit, eliminating unnecessary weight. First U.S. space vehicle to be powered in flight by liquid hydrogen, Centaur is being developed for NASA by GD/Astronautics under direction of Lewis Research Center.

Mobility

Corporate Office Opens at Cape

(Following are recent personnel transfers within General Dynamics. In parentheses are dates when individuals joined the company.)

Donald Scott from Fort Worth to Corporate Office on staff of **Dave Thomas,** assistant comptroller; **James Cowell** (1964) from Corporate Office to Electric Boat as material manager; **Grady Holt** (1954) from GD/Electronics to Corporate Office as manager at Huntsville; **H. T. Dillon** (1953) from Huntsville to GD/Astronautics; **J. L. Brooks** (1956) from GD/Electronics-San Diego to Pomona; **John Healy** (1960) from Astronautics to new Corporate Office at Cape Kennedy.

Howard M. Harvey (1952) from GD/Convair to GD/Astronautics engineering; **Jose G. Caero** (1958), **Daniel S. Cates** (1951), **Leo Charbonneau** (1957) from Convair to airframe design, GD/Fort Worth; **Howard B. Covington** (1956) from Convair to Fort Worth procurement planning.

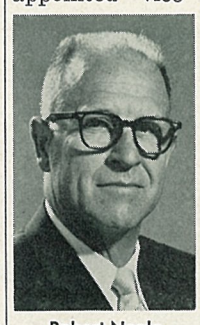
Gordon A. Smith (1963) from Astro (Plattsburgh) to structural design at Fort Worth; **Roland J. Fornataro** (1958), **Alan C. Phillips** (1952), **A. H. Ruddy** (1963) from Convair to Fort Worth airframe design; **Clayton S. Lang** (1956) from Convair to Astro engineering; **Bobby Helm** (1957) from Convair to maintenance engineering, Fort Worth; **James P. Ryan** (1953) from GD/Electronics-San Diego to Astro engineering.

Victor E. Korski (1947), **Harold Thornton** (1956) from Convair to Fort Worth's airframe design; **George F. James Jr.** (1956) from Convair to support equipment design, Fort Worth; **Donald C. Vandemore** (1963), **Peter E. Hoey** (1963), **Michael U. Fitzpatrick** (1963) from Astro to Fort Worth's structural design; **Dominick E. Palumbo** (1936) from Convair to Model 27 assembly, Fort Worth; **Paul J. LaFrenier** (1950) from Convair to Fort Worth flight; **Harold H. Langer** (1956) from Convair to Avionics systems at Fort Worth.

James E. Dale (1951) from GD/E-San Diego to Pomona engineering; **Josef A. Smole** (1940) from Convair to Astro engineering; **Stephen W. Babcock** (1956) from Astro to Pomona manufacturing technology; **P. Ralph Charlton** (1961) from Astro to Pomona engineering; **Howard A. Lockwood** (1947) from Astro to material, Pomona.

Neale Among New E-B Vps

Robert A. Neale, veteran General Dynamics executive, has been appointed vice president-operations for Electric Boat division by **J. William Jones Jr.,** division president.



Robert Neale

At the same time, **John V. Leonard** was named vice president-engineering, **Edward J. Behney,** vice president-manufacturing, and **Joseph D. Pierce,** vice president-nuclear power.

Vice president for manufacturing at Canadair Limited from 1950 to 1957, Neale became vice president and general manager of Convair division in 1961 and subsequently was Corporate director, Operations Service. He was succeeded in this post by R. M. Hatcher last year and since then has been on special assignment.

Holt, Healy Dillon Shift

Appointment of Grady Holt as manager of the General Dynamics Field Office at Huntsville, Ala., and of John J. Healy to head the newly created Field Office at Cape Kennedy has been announced by E. H. Heinemann, Corporate vice president-program development.

Holt succeeds H. T. Dillon who is shifting to a position at Astronautics division.

A senior aerophysics engineer at GD/Fort Worth from 1954 to 1959, Holt most recently was systems planning director at GD/Electronics in Rochester. A graduate of Tennessee Polytechnic Institute, he holds a master's from University of Tennessee.

Healy, a former manager of the Orlando, Fla., office, and Astronautics project coordinator, originally joined the company at Rochester in 1960. A graduate of Manhattan College, New York City, he holds an LLB from St. John's University.

Dillon joined the company in 1953 at Pomona division and was a project staff engineer when he went to Huntsville to open the new office there. A graduate of San Diego State College, he served in the U. S. Army in World War II.

Supplier Products Part Of Astro VE Seminars

A regular feature of GD/Astronautics' monthly value engineering seminars is the Supplier Product Display, held on Friday mid-way through each of the two-week workshops.

Coordinated by the material department value control group, displays provide an exchange of information between suppliers and VE students, as well as other GD/Astro personnel in procurement, engineering, etc.

Companies which receive invitations to exhibit are "specialty suppliers" in fields appropriate to GD/Astro's work. An attempt is made to achieve a balance between electrical and mechanical products at each display.

Since GD/Astro gives preference to local business, displays are chiefly from the San Diego or Los Angeles areas.

"We ask for displays that are a bit different from the usual sales promotion items," said R. N. Babcock, chief of vendor research and value control. "We emphasize that suppliers display specialties and concentrate on cost advantages, giving our designers and other key personnel the advantage of seeing firsthand the most current product information in their field of interest."

Suppliers like the idea. Letters from some have termed the GD/Astro programs the "best display opportunity in the industry." Some have achieved direct sales as result of displays, and at the very least, the exhibits serve to put companies with something of value in touch with the right people.

During the morning of a display day suppliers are available to VE seminar personnel, who present their projects and invite comment. Following this is an informal workshop session, which, in total, serves to underscore GD/Astro's emphasis on value control for suppliers, and encourage their interest.

Second phase, during the afternoon, is open to all GD/Astro people with a "need to know"—employees concerned with selection of materials, processes or component arts.

In advance of each display, notices are distributed through supervision, listing suppliers who will be present. Invitations also go to other General Dynamics divisions in the San Diego area, to GD/Astro customers, and to the Small Business Administration.

Normally, visitors at each display day number about 200.

"GD/Astro must have current knowledge of what products and processes are available," Babcock said. "Effective use of existing capabilities precludes the need to 'invent' an expensive alternative when the solution is already available."

Importance of value control is stressed throughout, beginning with an opening keynote address, normally presented by E. D. Heller, GD/Astro manager of cost reduction and value control.

Concerns Canvassed On Product Display

In preparation for a Supplier Product Display, about 400 companies in the Southern California area are canvassed on a six-month basis, and the 20 suppliers for each display are selected well in advance.

No displays will be held during July and August, but those for September through December are now being scheduled.

GD/Astro personnel wishing to suggest product areas for inclusion have been encouraged to contact Les King or Bill Hall, Plant 71, ext. 1470.

PALMDALE 'ALUMNI' GATHER JULY 19

"Alumni" of Convair's former off-site facility at Palmdale, Calif., are looking forward to a renewal of friendship and exchange of reminiscences when they gather for their first reunion July 19.

About 150 are expected at the family get-together at ARA Recreation Area adjacent to Astro's Kearny Mesa plant. Gathering time is set for 10 a.m.

Families will bring their own picnic lunches or, if they wish, purchase sandwiches and soft drinks from the snack bar at the picnic grounds.

Sports and games will entertain adults and youngsters during the afternoon and playground equipment and rides in the area will occupy the small fry.

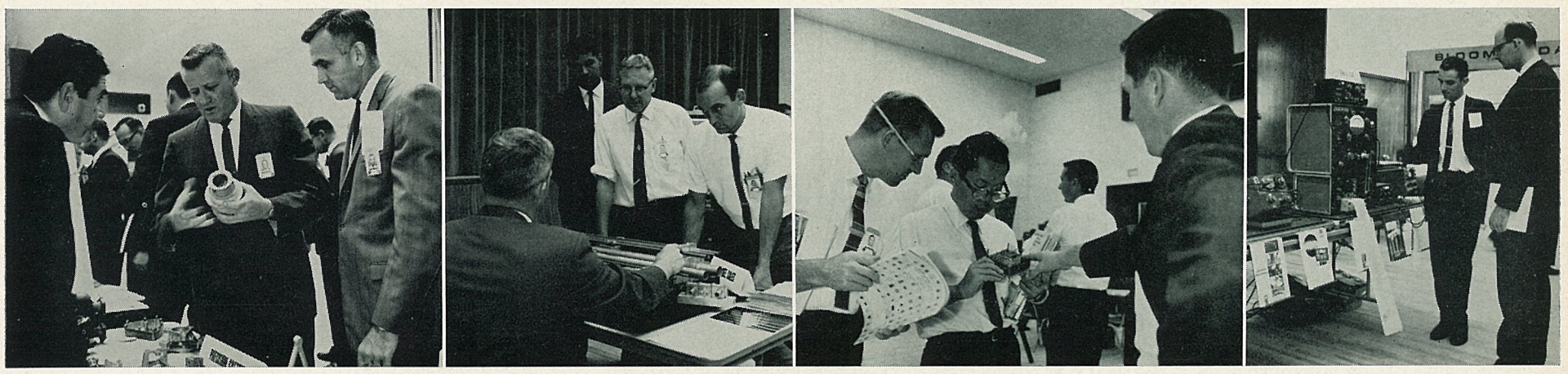
Jerry Schultz of Astro employee services, formerly in charge of employee services and recreational activities at the Palmdale site, plans to show films of Palmdale days.

"That new freeway that is supposed to get us to work quickly and quietly . . . Where do we barge onto it?"

Dynamics Declares Three-Day Holiday

General Dynamics people are looking forward to a three-day holiday this weekend, as they join the nation in observing the Fourth of July.

Work will be suspended on Friday (July 3) except for necessary maintenance and security functions. Employees will report at usual hours on Monday (July 6).



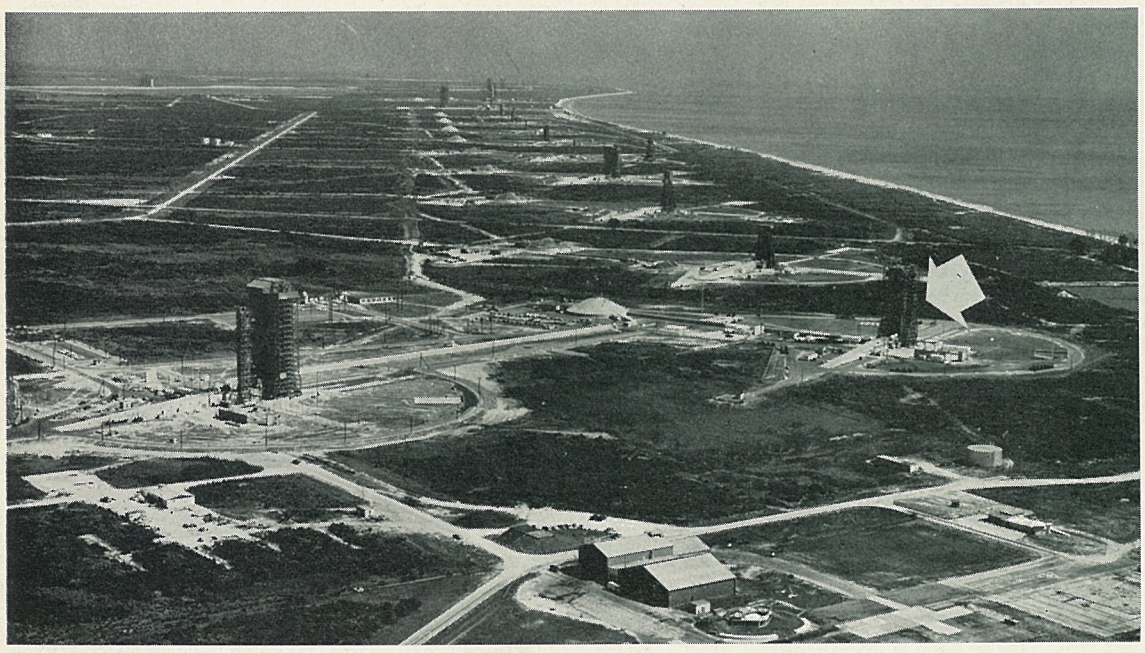
ADDED ATTRACTION — Novel feature added to value engineering seminars at GD/Astronautics is Supplier Product Display during which students talk over cost reducing ideas with vendors. At left, H. E. Moose, GD/Astro director of material, center, discusses part with manufacturer, and R. N. Babcock, display coordinator.

GD

SAN DIEGO EDITION
(Serving GD/CONVAIR
and GD/ELECTRONICS)

GENERAL DYNAMICS NEWS

Vol. 17, No. 15 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, July 15, 1964



LAUNCHER LINE-UP — Cape Kennedy, Fla., area gains increasing interest for General Dynamics folk as two divisions now actively engage in projects there. In background, new construction looms on Merritt Island Launch Area where GD/Convair will handle fabrication, installation and checkout of equipment in Central Telemetry Bldg. under contract to Pan American World Airways, Inc. In foreground are Centaur Complexes 36-B and 36-A (scene of recent GD/Astro launch), note arrow, while Complexes 11, 12, 13 and 14 (Atlas) march down shoreline behind.

TEL-4 Award For $3 Million To GD/Convair

General Dynamics/Convair has been awarded a $3 million follow-on program to integrate advanced telemetry instrumentation equipment required to support and monitor launch operations at the Air Force Eastern Test Range.

The award was made by Pan American World Airways, Inc., Guided Missiles Range Division, Patrick Air Force Base, Fla., prime contractor to the Air Force Systems Command for operation and maintenance of the Air Force Eastern Test Range (formerly Atlantic Missile Range).

The Convair assignment involves work at a telemetry receiving and recording station in Florida on Merritt Island, located across the Banana River from Cape Kennedy.

This new station is part of the Air Force Systems Command's program for expanded range telemetry instrumentation to be used in complex space launch and weapon systems testing. Convair will fabricate, install and check out remote control switching and display equipment as well as integrate more than 400 racks of government-furnished instrumentation equipment.

Electronic and instrumentation engineers at the San Diego division formulated detailed engineering designs for the station under a study and development contract awarded Convair July 15, 1963.

Work on the follow-on program announced last week will extend through December, 1965. Convair will build and check out a number of assemblies at San Diego before installing them in the Merritt Island Station.

These will include consoles for the master controller and the launch coordinators, the remote switch control unit, components of the master display board, and the video switching matrix that handles the high-frequency signals.

This equipment will be installed in or adjacent to the control and coordination room on the third floor of the 25,000-sq.-ft. Merritt Island Station.

The master controller will be able to assign all equipment to a given mission; locate unassigned equipment by automatic printout, determine status of all unassigned equipment by equipment type.

Each of the four launch coordinators will be able to patch all equipment to the mission configuration; interrogate the system to verify status with automatic printout; and unpatch and release equipment.

A four-color light system on the master display board will indicate the status—assigned and in use, calibrated—ready for use, ready—not calibrated, not ready —of all equipment.

W. T. Dorrance is responsible for Convair's portion of TEL-4, as the program is known. Dorrance is manager of electronic systems.

Avco Corp. Plans Use of S-C 4020

A GD/Electronics - San Diego S-C 4020 computer recorder has been included in the business and industrial computation center of Avco Corporation's Research and Advanced Development Division at Wilmington, Mass., it was announced this month.

The S-C 4020 will be used as an output device for the center's scientific computer. The recorder accepts digital signals from magnetic tape and converts coded data into plotted curves, tabular data, alphanumeric printing or any combination of these formats. The information is then recorded at high rates of speed on microfilm. Paper copies can be produced simultaneously with the microfilm or either process can be used alone.

The microfilm output can be used in a standard viewer, reproduced into multiple copies, projected for group viewing or placed into existing film storage and retrieval systems.

In addition to offering industry project time on the S-C 4020, Avco is using the recorder on its research and development programs, such as the design and development of the heat shield for NASA's Apollo lunar vehicle; studies into entry and landing of ballistic capsules on Mars and Venus; development of highly instrumented advanced-design reentry vehicles, and other advanced space programs.

Value Control Report Shows Spares Savings

First value control report from GD/Convair service parts' commercial provisioning section, under a newly-instituted recording system, discloses a saving of nearly $34,000 in the last two months on spares items ordered for Convair jet transports.

The reports on cost reduction in commercial spares will be submitted quarterly to H. P. Williams, Convair's manager of value control. Data will be incorporated into the division's overall cost reduction records.

The initial report, covering spares ordered during May and June, showed $33,728 reduction in cost spread over 78 separate items.

Largest share of the savings was due to competitive bidding effected by purchasing. A close look at value engineering of components, use of surplus on hand, and changes in manufacturing methods accounted for at least a third of the savings.

John Doig, manager of service parts, emphasized that it is extremely important, both to the division and its customers, to keep the costs as competitive as possible on spares production and procurement.

Les Kenyon, in charge of the commercial provisioning section, said that his group of 10 experienced analysts work closely with engineering, purchasing, tooling, and manufacturing to ferret out every means possible to produce spares at the lowest cost. (All have been thoroughly indoctrinated in value engineering through

(Continued on Page 2)

Production Areas Leading Safety List First Half of '64

Three production areas at GD/Convair passed the first six months of this year with a clean safety slate.

M. C. Val Dez, head of safety, said that Depts. 119, 128, 129, 171, Depts. 131, 140, and Dept. 401 are leading the list without a doctor's case during the first half of the year.

E. D. Robinson has responsibility for Depts. 119, 128, 129, 171, metalbond, plastics, trim, and field operations. Clarence Strand is in charge of Depts. 131, 140, experimental and pod and pylon assembly; while O. W. Sweetland oversees Dept. 401, tool manufacturing.

Plant engineering (Dept. 25) under Vern Sharp; warehousing (Dept. 14), under Frank Field; and Depts. 41 and 42, transportation and manufacturing control, under Miles Stepich, each had one injury which required a doctor's attention.

Bean Feed, Beer Bust Set For GD/E Club

GD/Electronics Management Club members will have a night out at a "bean feed and beer bust" next week, July 24.

ARA Recreation Area at Astro's main plant will be the site of the club's members-only outdoor meeting. A picnic meal and beer will be served at $1 each. Starting time is 6 p.m.

Sports, games, entertainment will fill the evening.

Tickets now are on sale by department representatives.

Life Insurance Sign-up Sought

GD/Electronics and Convair people have a last chance to sign for the new cash value life insurance provision offered General Dynamics employees under the improved group insurance program.

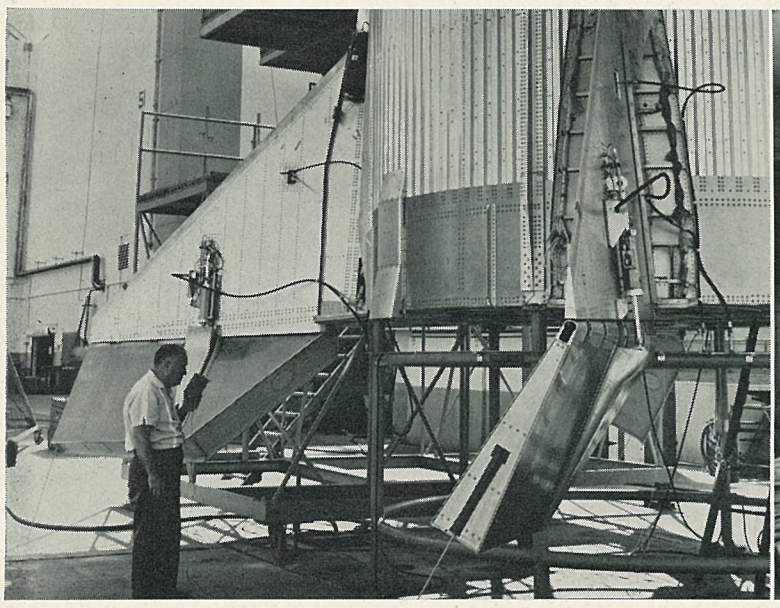
Over half of GD/E employees have indicated that they want to take out the supplemental group cash value life insurance, said George Oatman of GD/E employee services.

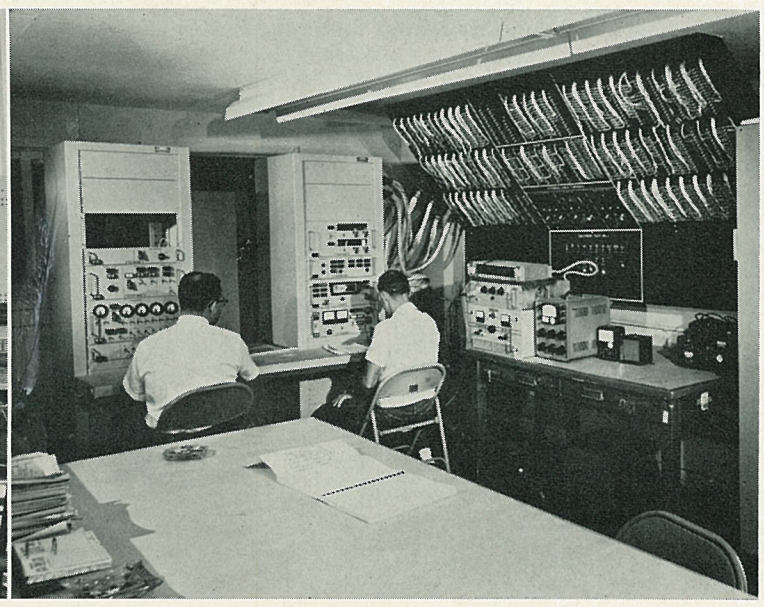
Insurance policies will be made available only if 75 per cent desire them.

Enrollment cards are going this week to all who failed to sign up for the plan, which, in effect, offers individual insurance at low group rates. Department heads are contacting each person individually to explain the plan. All will have a chance to reconsider and sign for the insurance. Cards must be returned by Friday.

GD/E people may contact Oatman at ext. 1757 for details.

Convair employees may obtain information from Ken Wulfemeyer at employee services, and reverse their decision, if they have already voted against the offer.





CHECKOUT — First Little Joe II vehicle equipped with attitude control system begins operational checkout at GD/Convair with Willard House, Dept. 131, on ground, communicating via "squawk box" with control center where Dick Horne, Dept. 6, and Harvey Booth, Dept. 131, operate controls. Launch vehicle is due at White Sands Missile Range, N.M., in September.

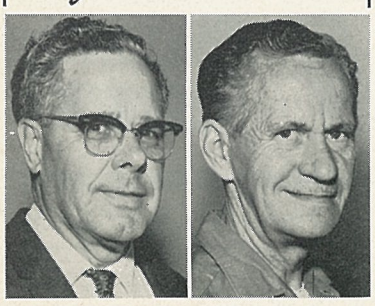
F-102 Air Division Wins Safety Award

Convair-built F-102 interceptors based with the 86th Air Division in Europe were credited with piling up an envious safety record during last year.

The 86th flew its interceptors to the best mark achieved by any major air command and won the 1963 USAF Flying Safety Award.

Squadrons in the division flying F-102s are the 526th at Ramstein, Germany, the 525th FIS at Bitburg, the 496th FIS at Hahn, and the 32nd FIS at Camp New Amsterdam, Netherlands.

Log Book Entries



TWENTY-FIVE-YEAR MEN — Wearing new 25-year service emblems at GD/Convair are M. C. Hangen, Dept. 423, left, and E. E. Carpenter, Dept. 128.

Papers Presented

CONVAIR

FULLER—R. D. "Typhoon Simulation for Vessel Design Studies," May issue of Undersea Technology.

ELECTRONICS - SAN DIEGO

BOTTOMS—R. L. "Command and Control for Tomorrow's Management," submitted to Datamation.

COOPER—H. G. "Computer to Microfilm — A New Era," at Society of Technical Writers and Publishers, San Diego, Calif., May 15.

TURNAGE—R. E. "Reduction in Distortion of Computer Driven Displays," May 11 issue of Electronic Design.

Awards

Employee Suggestion Awards approved for periods ending June 26 and July 3.

Dept. 6-31, E. H. Gilger, $36.10 (final payment).
Dept. 42, R. K. Johnson, $96.80.
Dept. 48, B. E. Mundt, $100 (partial payment).
Dept. 101, C. V. Beeson, $10.
Dept. 102, F. M. Baxter, $125.10.
Dept. 115, F. S. Hall, $43.40 (final payment).
Dept. 119, G. E. Armstrong, $109.70 (partial payment).
Dept. 128, V. C. Breit, $18.70.

Cost Improvement Proposals approved for the same periods.

Dept. 101, R. D. Gowdy.
Dept. 115, S. Penziul (two proposals).
Dept. 119, L. W. Stamper (three proposals).
Dept. 401, V. P. Mavrinac.

Service Emblems

CONVAIR

Service emblems due during the period July 1 through July 15.

Twenty-five-year: Dept. 25-2, Stephen Gardner; Dept. 400-1, A. J. Woods.
Twenty-year: Dept. 3-1, E. W. Wilson.
Ten-year: Dept. 6, F. B. Woffinden Jr., L. J. Wright.

ELECTRONICS

Ten-year: Dept. 74-10, F. L. Letzring Jr.

Personals

We would like to express our deep gratitude to General Dynamics friends and fellow employees for the beautiful flowers and kind expressions of sympathy sent in memory of our dear wife and mother, Dell Humphries, formerly of Convair's electric bench department.
Jack (formerly Dept. 401) and Jackie Humphries.

* * *

We wish to convey our most sincere appreciation to all of our Convair friends for the beautiful flowers and expressions of sympathy upon the death of our beloved wife and mother.
W. A. Moss (Dept. 42-6) and daughters.

GD/E CON-TRIB-CLUB OKAYS $4,500 UCS GIFT

Payment of $4,500 to United Community Services was unanimously approved at last week's GD/Electronics Con-Trib-Club Committee meeting. This is the second quarterly payment on the GD/Electronics pledge for the current year.

Ex-Palmdale Folk To Meet at Astro

This Sunday (July 19) is the date to remember for former Palmdale employees.

At that time, Palmdale people, stationed at Convair's former off-site facility during the F-102/F-106 flight test program, will gather for their first reunion.

Picnic site is the ARA Recreation Area at Astro's main plant on Kearny Mesa. Activities start at 10 a.m.

Convair Among Subcontractors Cited in Curtiss C-141 Award

C. S. Wagner, Lockheed-Georgia Co. vice president, visited the C-141 empennage production line at GD/Convair early this month when he was in San Diego to accept the first Glenn H. Curtiss Award.

Wagner was chosen by the National Society of Aerospace Professionals for his direction of the C-141 jet cargo plane program, voted the most outstanding example of aerospace industry's cooperation in development of an advanced weapons system. The Society, in its July 2 presentation, also cited Lockheed's use of the talents of subcontractors scattered throughout the nation.

(Convair has the subcontract for manufacture of 134 C-141 empennages, or tail sections.)

The C-141 is the first aircraft developed under both military and Federal Aviation Agency specifications for dual use—with the Air Force's Military Air Transport Service and as a commercial airfreighter.

Development and production has been ahead of schedule throughout the program. First production plane rolled out Aug. 22, 1963, two years and five months after the contract to design the aircraft was awarded.

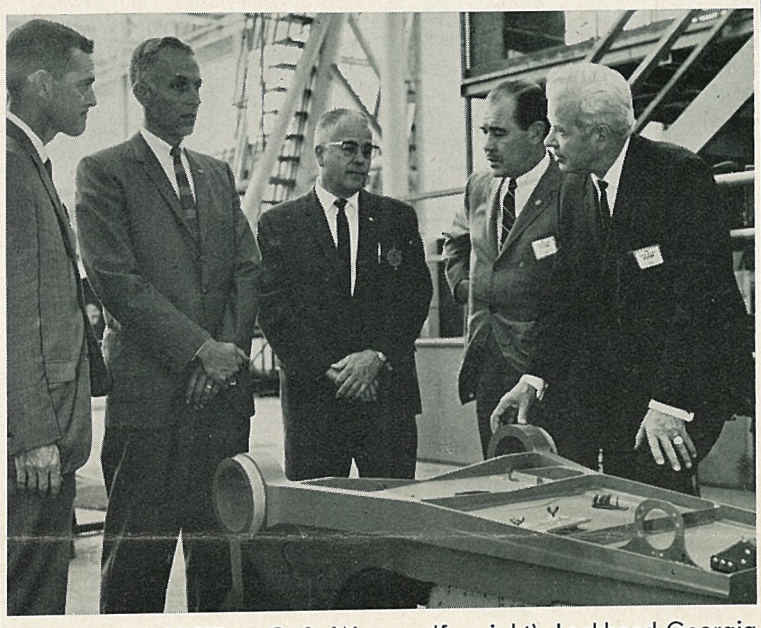
Sixth C-141 flew cross-country the middle of June to enter an 1,800-hour intensive flight test program at Edwards AFB, Calif.

Wagner, together with other Lockheed and Convair officials attending the presentation dinner, watched a fly-by of the test C-141 that evening. The huge craft swung over San Diego on a flight from Edwards and back.

Five C-141's have been test-flown over 130 hours in Georgia by Lockheed, the Air Force, and FAA. The sixth, seventh, and eighth will be flight tested by the Air Force exclusively. The ninth C-141 is due for delivery late this year to the Military Air Transport Service at Tinker Air Force Base, Okla., for operational use.

Convair recently completed delivery of the 17th empennage to Lockheed-Georgia.

Production operations are being stepped up at Convair, said R. W. Miller, C-141 program manager. They will be geared for four empennages a month by late this year and seven a month early next year.



LOCKHEED VISIT — C. S. Wagner (far right), Lockheed-Georgia vice president in charge of C-141 program, and Lockheed's H. Lee Poore, second from right, are briefed on status of Convair's C-141 empennage production during recent visit by R. W. Miller (second from left), program manager, and Paul Pearson (center), in charge of production. Don Stewart, C-141 contracts administrator, is at left.

Three Already Qualified at SD For President's Cost Award

Three GD/Convair people have passed the qualifying requirement for this year's President's Award in the first six months, and half a dozen others are near the mark.

Bertha Wilson of purchasing (Dept. 34) and last year's President's Award winners, H. A. Mohr (Dept. 101) and Howard Woodard of Dept. 115, have nearly $300,000 savings credited to them through Cost Improvement Proposals.

Bertha Wilson's CIP, dealing with purchase of material for the C-141 program, was reopened and boosted to a whopping $228,306.

Mohr and Woodard have had four CIPs approved to total $66,167.

L. W. Stamper of Dept. 119 is nearing the $25,000 eligibility amount with $24,605 to his account through seven CIPs.

Others who are definitely in the running are G. K. Cox, Dept. 101, with $16,072; D. Q. Henrie, Dept. 16, $15,230; Stan Penziul, Dept. 115, $14,683; O. W. Sweetland, Dept. 400, $14,270; and E. R. Hockert, Dept. 34, $12,097.

★ ★ ★

STAMPER SCORES TRIPLE 'STRIKES'

L. W. Stamper, GD/Convair metalbond fabrication and assembly assistant foreman, had three Cost Improvement Proposals approved during two weeks the first of this month to pile up over $22,000 annual savings to the company.

All three of his proposals dealt with better ways to do work on C-141 operations in his area. His largest CIP, worth $19,699 for a year's production, changed the type of nylon film used for bagging C-141 leading edge parts and other parts exposed to high temperature or long cure cycles.

His second substitutes a simple clamping device for rib blocks during flange installation on C-141 leading edges to save 480 manhours and $1,416 each year. The third involves the use of cad plate bolts and nuts and power right-angle impact wrenches to install and remove the bolts used to bolt web flange supports together. It will save 6½ hours per ship set or $1,127 in a year.

SPARES SAVINGS — John Doig, manager of GD/Convair service parts, right, and Les Kenyon, service parts supervisor, center, explain savings achieved on 880 component through intensive analysis to H. P. Williams, value control manager. Diplomas of service parts personnel who have been through value control training form background.

Value Control Report Lists Spares Savings

(Continued from Page 1)

the division's continuing program, and keep the value vs. cost principles foremost in their thinking at all times.)

"We are constantly examining the 'why' of the cost of each spares item," Kenyon said. "With assistance of Convair's alert buyers, we minutely evaluate vendors' bids. If we find we can do the work in-plant at less cost, so much the better. Or, perhaps a small change in engineering design will save a substantial amount of money. Producing parts in quantities, when practical, a change in materials, relaxing of tolerances can all make a great difference in final price. In addition, we're watching all the time for new methods of manufacturing to recommend for downstream savings."

A new price list, showing some 500 decreases in spares prices, is now being compiled for operators of Convair commercial aircraft.

Convair Son Home After Year Abroad

Bryan Cheney, Convair's winner of a General Dynamics Merit Scholarship, returned July 4 from a year in Germany with the American Field Service program.

Bryan, son of Mr. and Mrs. Harold Cheney, was a member of the Kurt M. Scheulen family at Munchen-Gladbach during his year abroad. He completed his high school education at the Hugo Junkers Gymnasium and will enter Harvard University this fall.

He spent all the month of June traveling in other parts of Germany before sailing from Rotterdam on USS Seven Seas.

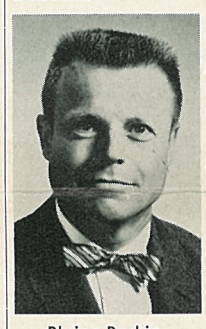
En route home he visited the World's Fair, Washington, D. C., and with relatives of his mother in New Orleans.

Harold Cheney is Little Joe II deputy program manager in charge of launch operations at Convair.

Blaine R. Parkin Assumes Post In Engineering

Blaine R. Parkin, formerly of Garrett Corp., has joined GD/Convair as manager of aerospace technology, Charles W. Frick, vice president-engineering, announced last week.

Parkin replaces G. G. Green who has been acting manager. Green will resume his duties as chief of structures, reporting to Parkin.



Blaine Parkin

Besides structures, other engineering functions coming under Parkin's responsibility are aerodynamics, thermodynamics, hydrodynamics, stress, weights, and reliability.

Parkin, a native Californian, came to Convair from Garrett Corporation's AiResearch Manufacturing Division in Los Angeles, Calif. He served there as chief of analytical operations for a special project involving development of gas centrifuges for the separation of uranium isotopes. In this capacity he was responsible for the aerodynamics and applied mechanics aspects of the advanced equipment.

Before joining Garrett Corp. in 1962, he had been with RAND Corp., Santa Monica, Calif., for six years as engineer in the physics department. He was connected with studies in the external phenonomenology of nuclear weapons, specifically the non-linear wave propagation of solids and fluids, together with other studies in various hydrodynamics fields.

Parkin holds master's and doctor's degrees in aeronautics, as well as a BS in mechanical engineering, from California Institute of Technology.

CLUB BOARD — Newly-installed officers of GD/Electronics - SD Management Club at first board meeting this month are T. E. Morris (head of table), president. Others, around table from left, are Rex Brouillard, board hold-over; Ivan Kemper, treasurer; Lou DiVincenzo, first vice president; Morris; Garrett McClung, second vice president; George McGinley, new board member; Len Hanson, secretary. Noble Barnes, other board member, was not present.

General Dynamics NEWS

Published by General Dynamics Corporation, One Rockefeller Plaza, New York 20, N. Y.; with editorial headquarters at 3302 Pacific Highway, San Diego 12, Calif., P.O. Box 1950, telephone 296-6611, ext. 1071. Logan Jenkins, editor-in-chief.

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Affiliated editions of General Dynamics NEWS are published in Rochester, N. Y., covering GD/Electronics and Stromberg-Carlson, editorial offices, 100 Carlson Road, HUbbard 2-2200, ext. 2555. Fred E. Voss, editor; and at Groton, Conn., covering GD/Electric Boat, editorial offices at Groton, HIlltop 5-4321, ext. 300 and 513, Joseph Tracey, editor.

Mobility

Transfers Among Dynamics Divs.

(Following are recent personnel transfers among General Dynamics divisions. In parentheses are dates when individuals joined the company.)

Fred C. Bader (1958) from GD/Convair to GD/Fort Worth structural design; **Billy G. Denman** (1958), **Clifford E. Dietz** (1946), **Joseph W. Fitzgerald** (1951) from Convair to Fort Worth airframe design; **James A. Campbell** (1950) from Convair to Fort Worth planning & controls; **Raymond R. Gibbons** (1951) from GD/Electronics-San Diego to Fort Worth planning & controls.

P. P. Silverman (1953) from Stromberg-Carlson material control to GD/Electronics-Rochester; **John W. McCulloch** (1957) from GD/Astronautics (Abilene) to Fort Worth support equipment design; **E. A. Black** (1947) from Astro (Abilene) to subcontract management at Fort Worth; **Louis C. Beckett** (1941) from Convair to Fort Worth support requirements; **Philip J. Evans Jr.** (1955) from Convair to Fort Worth structural design.

Roy D. Nichols (1950) from Astro (Roswell) to maintenance engineering, Fort Worth; **William B. Bellomy Jr.** (1950) from Astro (Roswell) to Fort Worth tool & operations planning; **O. W. Tevendale** (1947) from Stromberg-Carlson production engineering to GD/Electronics-Rochester; **Boise R. Kooperman** (1955), **Cecil D. Layman** (1955), **Elmer R. Leithoff** (1951) from Convair to Fort Worth airframe design; **Charles F. Rayfield** (1956) from Convair to Fort Worth aerodynamics & propulsion system.

Graham F. Campbell Jr. (1957) from Astro to Convair engineering; **Carrol D. Minor** (1943), **Isom R. Owens** (1963), **Robert A. Porter** (1951) from Convair to Fort Worth airframe design; **Lloyd G. Brooks** (1956) from Astro to Fort Worth tool & operations planning; **Robert L. Bauer** (1950) from Astro to Fort Worth structural design; **Wayne E. Mahan** (1951) from Convair to systems technology at Fort Worth; **Percy H. King** (1949) from Astro to Fort Worth maintenance engineering; **Edwin J. Story** (1962) from Convair to Fort Worth airframe design; **Joseph W. Carr** (1960), **Leslie L. McBrien** (1960), **Charles E. Trimble** (1960) from Astro to GD/Electronics-Rochester.

New Indonesia Stamp Carries 990 Print

A Convair 990A flies across a lavender-blue sky on a newly-issued Republic of Indonesia 25-rupiah postage stamp.

The Indonesian island country is becoming familiar with the 990 now that Garuda Airways has placed three in service.

Still based at Djakarta in support of the planes are Convair field service reps, Dave Weitzman, Court Zeiss, and Phil Smith.

TOUCHING UP—GD/FW Dept. 74 volunteers recently refurbished B-36 at Air Force Museum. T. R. Deaver and A. D. Lewallen go aloft in "basket" to paint giant tail section.

Bomber of Yesteryear Gets Fresh Paint Job

Visitors to the Air Force Museum at Wright-Patterson AFB, Ohio, can see a freshly painted B-36 on display, thanks to a helping hand from GD/Fort Worth's Dept. 74 (finishing).

Thirteen employees, under direction of J. H. Rhoades, assistant foreman, recently spent two days refurbishing the giant intercontinental bomber of yesteryear. The touch-up job included complete repainting, including markings and insignia.

Performing the job were: F. C. Bishop, R. Herrity, E. W. Green, H. P. Lenker, G. Selman, S. T. Galik, T. R. Deaver, B. R. Martin, L. R. Deese, R. B. Arledge, A. D. Lewallen, J. R. Clark, and J. T. Clement.

Contributed by Strategic Air Command, the RB-36 was flown to the Museum from Ramey AFB, Puerto Rico, in February 1957, and has been on display since.

The giant Peacemaker rolled off GD/Fort Worth assembly lines as a YB-36 and made its first flight Dec. 4, 1947. It was modified in 1950 and used by the Air Force in long distance, high-altitude reconnaissance flights.

Air Force Museum—with about 98,000 sq. ft. of floor space—is now the largest and most complete military aviation museum in the world.

The B-36 is statically displayed in a four-acre exhibit area adjacent to the Museum, which includes a P-38, B-17 and the B-29 "Bock's Car," famous for its raid on Nagasaki, Japan Aug. 9, 1945.

Constantly on the search for additional materials, the Museum staff welcomes information concerning any aircraft, documents, photographs, personal memorabilia, and other aviation equipment of historic significance. Specific needs now include an Me-109, Me-262, FW-190 (Stuka), Hawker "Hurricane," and any World War I aircraft.

IN ISRAEL—GD/Astro's J. Keith Pope, second from left, standing, is shown with six-member international group (others from Denmark, Norway, England, Australia, New Zealand) during just-completed Massada Archaeological Expedition in Israel. Team is atop King Herod's palace during excavation. In right background is Dead Sea.

And It Was Fun!

Adventurous Amateur Archaeologist Visits Israel in Three-Week 'Ordeal'

Nothing short of a "labor of love" could have prompted J. Keith Pope, GD/Astronautics publications editor, to subject himself to such an ordeal.

After providing his own transportation to Tel Aviv, Israel, he was flown to Beersheba, then transported via army truck across 75 miles of desert wilderness.

For the next three weeks he arose before dawn, climbed 1,300 ft. upward along narrow paths. For nine hours he moved boulders and shifted earth in 100 degree-plus temperatures with frequent dust storms. He was always on the alert for snakes and scorpions. In the evenings he descended to camp for supper and a shared tent with only a cot.

For all of this he was paid nothing.

Pope, an amateur archaeologist, was one of 1,000 volunteers from 32 nations who took part in the just-completed Massada Archaeological Expedition in Israel under Professor Yigael Yadin of Hebrew University.

He was assigned to a six-man team (other members were from Norway, Denmark, England, Australia and New Zealand) and a set plot in the overall excavation site. His group, numbering 249 in all, was the 14th and final group to work on the project to excavate King Herod's palace.

The expedition resulted in discovery of many new religious objects, 5,500 baskets of pottery, 2,500 Roman and Byzantine coins, thousands of small silver and bronze armor scales, glassware, silver shekels, Latin papyri, twine, rings, cloth, rope, many bronze objects and skeletons, some remarkably preserved.

Each team carefully dug in its assigned plot, removing and tagging each object unearthed, then sending it down for its eventual journey to Israel museums.

Pope's team, hours before the end of the expedition, unearthed a solid gold broach inlaid with four gems at each corner and 51 Roman coins fused together by patina.

While languages were a hinderance at times, those participating managed to make themselves understood in either Hebrew, French or English.

This "international flavor" also led to many discussions and some arguments. Pope, like the other United States citizens present, were often called upon to explain American foreign policy in places they had never known existed.

"Try explaining something you know very little about to a rabid man or woman from another nation some time," Pope said. "You get an education in a hurry."

At 44 Pope was one of the "elders." A majority were younger, some still in college.

Pope, who is non-Jewish, found some problems in observing the very strict Jewish food customs imposed on one and all, although he admitted a liking for certain foods he had never tried before.

Previously, Pope has helped in archaeological excavations in Yucatan and Baja California as well as around the United States. Like the majority of those taking part in the expedition, he felt the real treasures at Massada are yet to be uncovered.

"Despite the hardships and other factors, I would do it again, if I could," Pope said. "For me it was a once in a lifetime experience."

MASSADA FAMED JEWISH SHRINE

Massada is a historic Jewish shrine located in the Wilderness of Judea overlooking the Dead Sea.

It is a plateau, 700 feet wide and 2,000 feet long, rising to 1,300 feet above surrounding wastelands.

About 40 B.C. King Herod the Great selected it as a site for a magnificent three-tiered palace carved out of solid rock. He surrounded this with fortresses and stocked underground caves with food, drinks and arms.

Roman legions occupied the site after the fall of Jerusalem. In a later revolt (around 66 A.D.) a band of Jewish warriors, the Zealots, again took over the fort and used it as a base.

INSIDE VIEW—Don Gonzalez, Dept. 143-2, operates GD/Astro's new X-ray/Television Inspection System. On TV monitor before him are X-ray views of two tiny diodes—each roughly the size of a single grain of rice!

X-Ray and TV Combine to Reveal 'Insides' of Tiny Electric Units

Beginning operation recently at GD/Astronautics is an unusual X-ray/television inspection system which promises faster, more effective and more economical inspection of the multitude of tiny electrical components used in the division's products.

System installation was completed recently in the new consolidated-environment facility of electronic receiving inspection (Dept. 143-2) in Bldg. 5 at the main plant.

It consists of an 8 by 10-foot, lead-lined "exposure room" with an operator's control and work console just outside.

The exposure room houses high-voltage X-ray equipment, a cooling system, special remote control handling equipment, and a special television camera which is sensitive not to light but to X-rays!

This high-resolution (400 lines per lineal inch) camera sends its pictures to a TV monitor at the operator's console and provides him with an X-ray view, enlarged about 30 times, of the subject under inspection.

From his console, the operator controls movement of the camera, and special handling fixtures in which the inspection subjects are mounted.

A "drum sampler" holding some 600 items moves these one at a time before the camera, turning them, in the process, through 360 degrees for complete inspection. Soon to be added is a system by which the operator can reject any one of the items as they are inspected, simply by pressing a button at his console.

The new system will be used for inspection of a variety of small electronic parts—diodes, transistors, micro-relays, micro-diodes, tiny transducers, etc. In addition, a study program is under way to investigate its adaptability for inspection of weldments.

C. W. Foster, Dept. 143-2, is engineer in charge of the system.

ARA-CRA Flower Show To Be Two-Day Affair

Exhibitors in the coming ARA-CRA summer flower show will be shooting for two special awards, given for the first time this year.

Arnold Carroll, long-time Garden Club member, has set up the "Ona Mae Carroll Memorial Award" in memory of his wife, also an enthusiastic gardener and winner of many Garden Club awards over the years. It will be a perpetual award, going each year to best arrangement in the show.

The Garden Club itself has established a permanent individual trophy for best dahlia.

This year's show will be a two-day affair on Saturday and Sunday, July 25-26. For the first time it will be held in the auditorium of ARA Clubhouse in Astronautics Recreation Area.

Best-of-show awards will go to top entries in nine classes: overall dahlia, smallest and largest dahlia, three pompons, three miniatures or balls, fruit or vegetable, arrangements excluding the small entries, corsages, children's entry.

Ribbons will be awarded first three places in 49 classes of dahlias, four classes of citrus and deciduous fruits, eight vegetable classes, seven for arrangements and three for bouquets, four classes of corsages and two children's classes.

ARA Commissioner Everett Henderson and Henry Boyd, acting CRA commissioner, are in charge of show details.

Sheets listing show divisions and other information now are on hand at Astro and Convair employee services.

Sixty Engage In Trap Shoot

One of the best-attended registered shoots sponsored by CRA Gun Club drew 60 individual marksmen to Gillespie Field Range June 28 to compete in an ATA trapshoot.

Eleven squads entered 16-yd. event and nine vied in the handicap.

Joe Chilton of San Clemente shot a 96 to win Class A of the 16-yd.

L. P. Johnson of Chula Vista won the Class B title in a 23-22 shoot-off after tying with George Anderson of Astro with 95.

Class C winner was Dick Williams of Anaheim with a score of 94. Larry Bloom of Spring Valley shot 88 for top spot in Class D.

Ada Johnson's 86 was best woman's score and good for first in Class E which gave Margaret Davis, with an 82, a first in high lady class. Mrs. Johnson received one of the belt buckles going to all class winners while Mrs. Davis won the compact, high lady's prize.

Jeff Johnson, as high junior with 77, also won a belt buckle.

In the handicap event, high lady Lois Smith turned in a remarkable performance when she placed second out of a field of 42. She shot a 90, just two birds behind first-place Jack Swank.

Winners of belt buckles for top scores in each yardage division were: 18-yd., Ada Johnson, 82; 19-yd., Swank, 92; 20-yd., C. E. Stinson, El Centro, 87; 21-yd., Clyde King, North Hollywood, 88; 22-yd., Norm Kline, El Centro, 87; 23-yd., Carl Haynes, San Diego, 87; 24-yd., Sona Wong, El Centro, 84; 25-yd., Joe Chilton, 78.

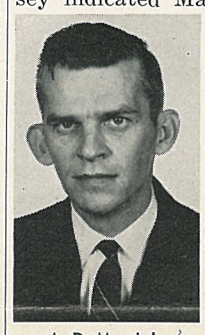
Chilton topped doubles Class A with 89 and Jack Smalley of San Diego was Class B winner with 85.

REPEAT WIN — Roy Woodle, left, accepts second consecutive Craftsmanship award in Vandenberg AFB competition from Travis L. Maloy, manager of test and launch operations — Space Launch Vehicles, on behalf of Dept. 682-5 employees (MAB-5). Department won both April and May honors.

Mardel Named Test Manager

A. D. Mardel has been appointed manager of test data processing and evaluation, a new position, at GD/Astronautics.

GD/Astro President J. R. Dempsey indicated Mardel will be responsible for establishing a program which will materially improve the cost effectiveness of test data planning, evaluation and utilization. Initially, the test data processing task now assigned to advanced information systems and headed by H. E. Pietsch is assigned to Mardel's function and other assignments and personnel will be added later.



A. D. Mardel

A native of Buffalo and a graduate of the University of Buffalo, Mardel worked for five years for Bell Aircraft, joining GD/Convair in 1955. He shifted to the Atlas program and Astro the following year, serving as a flight test engineer, senior flight test engineer and group engineer.

Mardel left Astro for a time to work with NASA in Houston, first as manager of system integration, later as a consultant.

Ceramics Fans Use New ARA Facility

Ceramic workshop sessions, open to all ARA members, continue to be held each Tuesday and Thursday (10 a.m. to 1 p.m., 7 to 10 p.m.) at ARA Clubhouse.

While professional instruction is available, these sessions are primarily operated in the workshop tradition, rather than as classes. Those taking part work on actual ceramic projects.

Greenware and miscellaneous items necessary to ceramic operation are available at discount prices. There are two kilns to fire finished greenware for a modest fee.

Interested persons are invited to take part in sessions.

Ranscht Tops Field In Pistol Matches

Final June pistol matches staged by ARA marksmen found Warren Ranscht taking top honors with 296 of a possible 300 total, followed by Roland Schneider with 292.

John Bennett and Bill Dittmann; Lee Messerli and Bob Brindle; and Ed Kaminski placed in that order in other divisions.

J. S. Knutson won the Short National with Ralph Sanderlin, Ranscht and Schneider finishing in that order.

ARMED — Miles Gordon of Astro is all set to direct SD Technical Writers and Publishers' group with unique gavel made of tools of trade.

Writers Group Elects Gordon

Miles Gordon, Astro Dept. 148-3, accepted an ingenious gavel made of tools of the writing trade when he was seated June 25 as new chairman of the San Diego Chapter of Technical Writers and Publishers.

E. S. Bill of Astro Dept. 315-0, outgoing chairman, handed over the odd mallet, a composite of pens, pencils, brushes, eraser, topped with ink bottle and type slugs bearing the organization's title. The handsome walnut case was made by John Holland of Convair Dept. 16.

Other chapter officers installed in gay dinner ceremonies at the Roaring 20s were: vice chairman, Frank Hunter, formerly of Convair now SD City College instructor; treasurer, Sandra Prowse, Astro Dept. 148-3; recording secretary, Frank J. Berberich, Astro Dept. 693-3; corresponding secretary, John E. Stevens, formerly of Convair and Astro.

Referees Sought For Fish Derby

General Dynamics anglers interested in serving as referees during the July 24 "Derby Day" portion of the San Diego Yellowtail Derby are being sought by the Junior Chamber of Commerce.

Referees will receive free boat passage, food expenses and free time for fishing.

They will explain rules of the derby to participants, enforce rules, announce opening and closing of fishing, regulate rotations and arbitrate disputes. Boats will leave at 2:30 a.m., returning at about 7:30 p.m. Either albacore or yellowtail will be sought.

Fred Colley of GD/Astro will discuss the program with those contacting him at ext. 4635, Plant 71, or at home evenings at 274-1107.

HAIR SPRAYS SEEN AS FIRE HAZARD

Aerosol canned hair sprays may be creating dangerous conditions at times without the users being fully aware of the fact, A. C. Anderson, GD/Astronautics fire chief, said this week.

Most sprays are labeled "flammable" with cautions not to use in closed areas, while smoking, or near lighted flames.

Despite these warnings, some GD/Astro rest rooms are frequently saturated with floating spray at times each day. Meanwhile, cigarettes are being lighted or smoked.

"We are fortunate no accidents have resulted from this practice," Anderson said, "but it could happen."

A quick check of rest rooms before entering with lighted cigarettes is recommended.

Telephone Numbers For RC Are Revised

Plant extension numbers at GD/Convair's Rose Canyon facility were changed, effective July 10.

All Rose Canyon 2,000 series numbers now are changed to 200 numbers. A sheet listing the new phone extensions will be issued for inclusion in the revised plant telephone directory.

The reduction of telephone switching equipment servicing Rose Canyon is in line with Convair's policy of keeping equipment to a level compatible with current and projected needs.

Crews Undergo 880-M Training

Two groups of Japan Air Lines pilots and flight engineers completed 880-M cockpit procedures training at GD/Convair the first of this month.

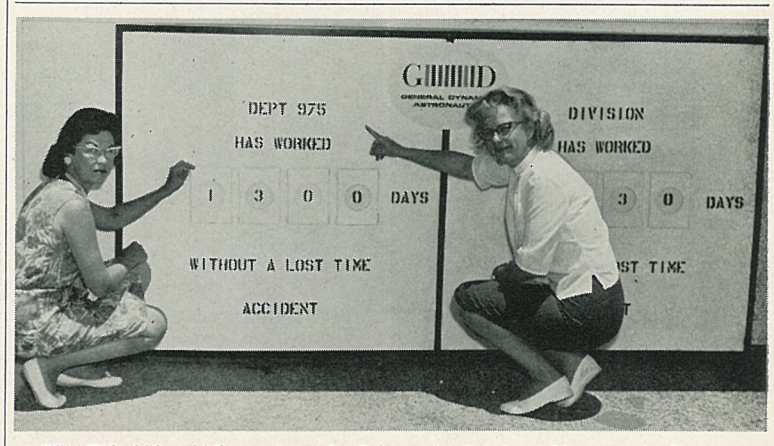
Altogether, 16 JAL crewmen were at the San Diego plant to be checked out in the trainer before they are assigned to duty with JAL's Convair jet transports. Each group of eight spent a week at Convair for 20 hours apiece in the trainer to become familiar with systems control.

Meanwhile, GD/Convair pilots W. B. Harwell and A. P. Wilson are conducting actual flight training for JAL pilots and flight engineers in Los Angeles. The Japanese airline flew one of their own Convair 880-Ms to California for the program. Trans World Airlines is providing maintenance.

All of JAL's pilots and flight engineers in the 880-M training have flown other jet transports and have been through a two-month 880-M ground school in Tokyo, said Shigekazu Ishiro, JAL supervisor of the 880-M flight training.

C. J. Falkenthal, Convair flight engineer-instructor, was in charge of cockpit procedures trainer courses with Larry Luce, electronics flight technician, responsible for trainer maintenance.

JAL flies eight Convair 880-Ms over its extensive routes. First 880-M was put into service with JAL during the fall of 1961.



THAT'S US—When Astro's Edwards Rocket Site work force recently passed 1,300th day without lost-time accident, two secretaries helped mark up event on display boards. They are, Mary Orlowski, left, and Chris Marques. Edwards boasts longest unbroken record of all off-site operations.

WINDFALL — Employee Suggestions pay off wherever Astronautics employees work. Merrill LaFrance (Dept. 394-3) receives $250 check from R. D. Wasser, Astro base manager at Plattsburg AFB, for suggestion on reworking columnator housings. At both operational and test bases many employees turn ideas into cold cash through Employee Suggestion program.

Tour Deadline Moved to 31st

Deadline for signing for this summer's Mexico tour has been extended to July 31.

Jim Hardison of GD/Convair, who is conducting the de luxe trip for General Dynamics tourists, said that a few places still remain. However, anyone interested in taking the two-week trip to Mexico City and Acapulco, and cities in between, must sign at once to reserve accommodations.

Tour dates are from Aug. 21 to Sept. 6. Travel will be by air-conditioned train from Mexicali. Total price for transportation, hotel rooms, most meals, all sightseeing is $360 which must be paid before the first of August.

A meeting has been called for July 20, 6:30 p.m., in Convair executive dining room, to discuss trip details, said Hardison.

For more information Hardison may be reached evenings at his home phone, 276-5805.

Plant Championship Golf Starting Soon

Astronautics Recreation Association's annual plant championship golf tournament will be held Aug. 2, 9 and 22-23 at Carlton Oaks.

Entries are being accepted at employee services office, Bldg. 8, Plant 71. Fees for the first round are $5 ($4 greens fees, $1 prize fund), with subsequent rounds $4 each. Deadline for entering is July 22.

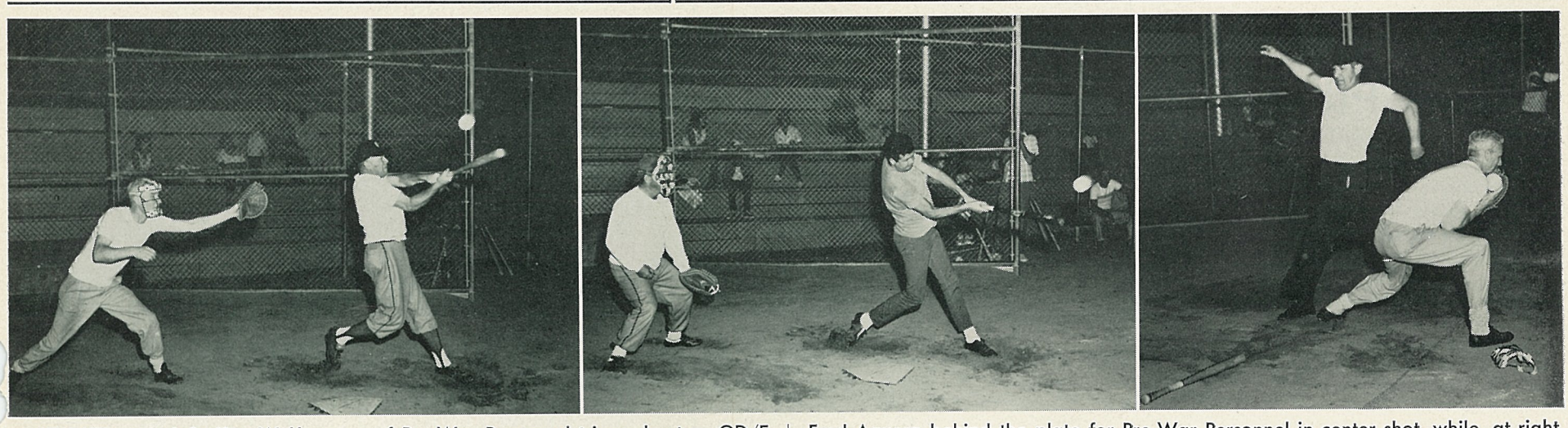
This annual match play tournament brings together top Astro par chasers who compete in flights for trophies and merchandise awards. Winners in each round will advance into the following week's pairings.

Information is available through ARA office, ext. 1111.

Salvage Yard Set For Sale Saturday

Convair's salvage yard at Plant 1, adjacent to Gate 5, will be open to General Dynamics people for employee sales this coming Saturday (July 18) from 8 a.m. until noon.

Next open date is Aug. 1. Astro salvage yard will not be open again until Aug. 8.



AT BAT! — At left, Ken Wulfemeyer of Pre-War Personnel tries a bunt as GD/E Operations catcher, Barney Earley, stretches for ball in close battle of CRA "slow pitch" softball tourney. Mike Peterson of GD/E team is ready to hoist out one with Fred Aguero behind the plate for Pre-War Personnel in center shot, while, at right, Gil Crosthwaite of Pre-War Personnel is forced out at home by Early. GD/E team emerged winner by one run.

Take Your Choice in Wide Range Of Bargain Rate Attractions

Convair and GD/E people have a wide choice of special offers to local attractions through CRA arrangements.

Now at employee services are exchange tickets allowing substantial reduction in admission prices to Circle Arts Theatre, Starlight Opera, and Cinema 21 performances.

Tickets to "Music Man" performance on July 21 at Circle Arts cuts $4.50 seats to $3.15 and regular $3.75 seats to $2.60. They must be presented at the box office two days before the discount night.

Discount passes to any Starlight performance cut the regular prices by 30 per cent. They may be exchanged at Borgen's Music Co. or at the Balboa Park Bowl box office on night of performance.

Schedule starts tomorrow with "Song of Norway," playing July 16 through 19, 23-26; "Wizard of Oz," Aug. 6-9, 13-16; "Sound of Music," Aug. 27-30, Sept. 3-6; "Here's Love," at the Fox Theater Sept. 29-30, Oct. 1-5.

Discount Padres baseball night will be July 22 with exchange tickets now on hand good for a 75c reduction in regular prices for either reserved or general admission.

Other offers allow 25c discount in prices at Frontier Town at Big Oak Ranch, east of San Diego; 35c discount to Ice Land, 6055 Lake Murray Blvd., La Mesa; and half-price special any night at Mission Valley Ice Plaza.

Young Qualifies For Gun Team

Dale Young of Dept. 115 was named to CRA Pistol's Club competitive team for the next three months as the only new member of the foursome.

Other team members are Commissioner Joe Williamson, W. G. Walker, and Jim Halfacre. All have been on the team steadily for some time by virtue of their scores in each preceding quarter. Williamson and Halfacre have been top scorers regularly for many years.

In June 28 club matches, Williamson was first in the master class of the 22-cal. Police Course with 288. Vern Mardis was second, just a point behind, with 287. Halfacre shot 283 for third spot.

A newcomer to the group, Mardis's son, Jim, scored 277 to take No. 1 spot in the expert class. Walker was second with 274.

Halfacre, Williams, Walker were one-two-three in 45-cal. Short National competition with 246, 245, 244 respectively.

Convair Coin Club To Meet Tomorrow

Convair Coin Club members will meet tomorrow evening (July 16) for their regular monthly gathering in the main Convair cafeteria, Pacific Hwy.

A door prize and raffle prize of a 1954 proof set will be given and the usual auction held. Refreshments also will be served.

Members are reminded that they can purchase numismatic supplies, such as tubes, books, as well as coins, at reasonable prices at the meetings. Guests are welcome.

Tomorrow Deadline On Portland Game

General Dynamics ball fans have just today and tomorrow (July 15-16) to pick up reserved box seats to the Padres game with Portland this Friday.

GD/Convair Management Club is offering the choice $2 seats at special discount price of $1.25.

They are available to any GD employee at either Convair or Astro employee services, or from any Management Club ticket salesman at Convair, Astro, or GD/Electronics.

Dvorak's 5-lb. Bass Wins $10 June Prize

Harry W. Dvorak (Dept. 6-2) was top angler for June, winning the CRA Fishing Club's high cash award of $10 for his 5-lb. large mouth black bass caught from Sutherland Reservoir.

Phillip Poche of Dept. 42 caught a 3-lb., 12-oz. bass at Henshaw Lake for the $5 second prize.

Fishing Club members and their families will gather next Tuesday (July 21) at CRA's Pecan Park for their annual summer picnic. Commissioner Bob Menzie will furnish fish for a fish fry, or members may supply their own meat for barbecuing. Potluck will be at 6:30 p.m. with a short business meeting at 7:30.

Horsemen to Fete Juniors Saturday

Convair horsemen will fete Junior Riders at a trail ride and campout planned especially for the young group on Saturday (July 18) at Cuyamaca Park.

Commissioner Tommy Thomason said that horses will be available for the all-day outing. All interested are to contact Thomason at 232-0153.

CRA riders went to Vallecito Stage Station for an over-night outing and trail ride the weekend of June 21-22. Vernon Logan was trail boss. Betty and Luke Barbour were in charge of the campsite.

Soldering Classes Taught by Turner

Soldering certification and recertification classes at GD/Convair have been in progress this week and last for several assemblers and inspectors from Convair and Kinetics Corp.

Two from each company were recertified in a 24-hour course last week and three from both Convair and Kinetics are taking the full 40-hour course for certification to NASA requirements this week.

Wayne Turner of educational services is instructing.

Sports & Recreation

Pine Crest Resort Draws Many For Holiday Picnics, Camping

Convair Recreation Association's mountain resort had a full house of vacationers enjoying the area's wooded seclusion over the Fourth of July weekend.

All of the 35 campsites at Pine Crest were filled by Convair and GD/Electronics families, reported J. K. Field, manager of personnel services.

Arnold Shrock, park manager, estimated that nearly 150 people spent all or part of the three-day holiday hiking, picnicking, playing, or resting. Children made good use of swings, slides, merry-go-round, and other playground equipment, and a public address system has been set up for broadcasting records.

The 90-some acre resort, three miles from Julian, is expected to draw more and more picnickers and weekenders during the summer months. All General Dynamics people may use the park for picnics at any time, free of charge, said Field. However, overnight camping is limited to Convair and GD/E employees. A minimum charge of $1 for use of facilities is levied for each vehicle for one or two days.

Rest rooms, barbecue pits, charcoal, picnic tables and benches, water are all available at the camping grounds. Soft drinks and ice can be purchased in the park and food can be obtained in Julian.

Families are asked to leave their pets at home, as only small dogs on leashes are allowed.

Everyone using the park must register with Shrock and present ID cards.

CRA Calendar

(Convair Recreation Association has some 30 activities in operation for Convair and Electronics people. For information call CRA Headquarters, ext. 1245.)

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AEROMODELERS — Flying sessions Saturday and Sunday mornings, 8 a.m. to 1 p.m., Clairemont Flying Site.

COIN CLUB—Regular meeting tomorrow (July 16), 7:30 p.m., Convair cafeteria, Pacific Hwy.

FENCING—Workouts and instruction each Friday night, 7-10 p.m., YWCA, 10th & C Sts.

FISHING CLUB—Annual family picnic July 21 at Pecan Park. Potluck at 6:30 p.m., meeting, 7:30.

GARDEN CLUB—Joint CRA-ARA annual summer show, featuring dahlias, July 25-26, ARA Clubhouse.

ICE SKATING—Thursday ice skating sessions for GD people, Mission Valley Ice Plaza, 6:30-8 p.m.

MEXICAN TOUR—Meeting for all interested General Dynamics people next Monday (July 20), 6:30 p.m., Convair executive dining room. Deadline for sign-up July 31.

MODEL RAILROAD — Work nights, Fridays, 7:30 p.m., open sessions, Sundays, 1-4:30 p.m., House of Charm, Balboa Park.

MOVIES — Reduced prices for General Dynamics people at State Theater, Euclid and El Cajon Blvd. General admission: adults, 75c; children, 25c.

PISTOL CLUB — Next club shoot July 26, 9:15 a.m., San Diego Police Pistol Range, Federal Blvd. and Home Ave.

RADIO CLUB—Next meeting July 23, 8 p.m., Harbor Drive club headquarters.

RIDING CLUB—All-day trail ride for Junior Riders at Cuyamaca Park July 18. Call Tommy Thomason, 232-0153.

RIFLE—All Convair and GD/E people interested in either senior or junior rifle instruction and competition call Martin Miller, ext. 715.

ROAD RUNNERS — Regular meeting tomorrow (July 16), 7:30 p.m., Gillespie Field Clubhouse.

ROLLER SKATING — Free tickets at employee services for General Dynamics skate night July 20 at Skateland, Front and G Sts.

SOFTBALL — First half of "slow pitch" league ends tomorrow night with games at Central and Linda Vista fields.

SPORTS CAR CLUB — Breakfast rally to Pine Crest Aug. 2.

SWIMMING — Free family swim night July 18, 7-9 p.m., Mission Beach Plunge. Tickets at employee services.

WATER SKI CLUB — Skiing weekends on Mission Bay. Call Gene Sevigny, ext. 1778, Plant 1.

Sports Car Drivers To Head For Hills

CRA Sports Car Club families will work up hearty appetites when they drive the 50 miles or so to Pine Crest for breakfast the first Sunday of next month, Aug. 2.

About 100 are expected for the rally to the CRA mountain resort area, said Commissioner Gerry Wright, who heads work committee.

A man-sized breakfast will be ready about 9:30 a.m. with hotcakes, eggs, ham, bacon on the menu. Presiding at the griddles will be Wright and his assistant chefs, Sid Weiner, Byron Ferguson, Spud Riggs.

Children and grown-ups will compete in games and sports.

Sports Car Club members gathered last Sunday (July 12) at the Copper Penny Restaurant in College Grove shopping area for breakfast and an informal tour through the back-country.

GD/E Ops Tops Pre-War Vets In 'Cliff-Hanger'

Pre-War Personnel tried awfully hard, but couldn't quite hold GD/E Operations as the two leading "slow pitch" teams battled it out in a cliff-hanger July 2.

GD/E boys wound up in a photo finish, 11-10.

Both teams were tied with 3-0 records before they met each other in hand-to-hand combat.

Pre-War players led 7-1 as they went into the sixth inning when GD/E rallied to bring seven men home and go ahead by 4 runs.

Pre-War Personnel came back to score 3 in the last of the 7th and had a man on third when the final out was called.

Al Catalano pitched for GD/E Operations and Gil Crosthwaite for Pre-War Personnel.

In other July 2 games at Linda Vista field Convair Material bested Fire Dept., 6-1, and Beasts pulled a tight one from Hi-Lows, 2-0.

The week before Pre-War Personnel beat Convair Material, 9-1; GD/E Material downed Beasts, 3-0; and GD/E Operations won from Hi-Lows, 6-5.

Tomorrow night's games end first half of the season. GD/E Material will meet Pre-War Personnel at Central playground, 8 p.m. Convair Material and GD/E Operations will play at 6:45 p.m., and Fire Dept. will meet Beasts at 8:20, both at Linda Vista field. Hi-Lows draw a bye.

GD/Convair Wife Cited For Beauty

A Convair wife, Bobbie Jarvis, was publicized as San Diego area "Beauty of the Week" early this month. Her husband, Gary, is an engineering assistant in Convair's low speed wind tunnel.

Nominated by her sorority, Mrs. Jarvis was chosen for her many activities, and good looks. Her hobbies include cake decorating, sewing, painting, knitting, cooking—to mention a few!

And, she still has plenty of time for her three children—Debbie, 11; John, 9; and Scott, 5.

ACCOUNTING SOCIETY ELECTS ASTRO MEN

Five GD/Astronautics men have been named directors of the San Diego Chapter, National Association of Accountants. They are: R. R. Mendoza, J. R. Paulson, F. J. Plein, W. E. Potts and R. L. Thompson.

Parry 'Shoots' Birdie, He Was Surprised, Too!

An unorthodox "birdie," made by Bill Parry during a recent round of golf, didn't count on his score.

Parry's wood shot on the 17th hole of Stardust course zeroed right on target to bring down a mourning dove in flight.

In spite of the distraction, Convair's general purchasing agent still managed to par the hole. Witness to the amazing feat was O. Morgan of Loud Machinery Co., Parry's golfing partner.

Special Test Facility Probes Plasma Power

Once man has traveled to the moon and returned, he must look to a propulsion system utilizing electrical rather than chemical power to take his spacecraft even farther, say to Mars or Venus.

One possibility would be a plasma (hot ionized gas) system which could operate continuously for a year or more.

GD/Astronautics' space laboratory has built a special test facility to carry on research work on such a system.

Dr. Hideo Yoshihara, manager, said this research is directed toward understanding of the physical processes involved in acceleration of hot gas in a pulsed coaxial "gun" or engine.

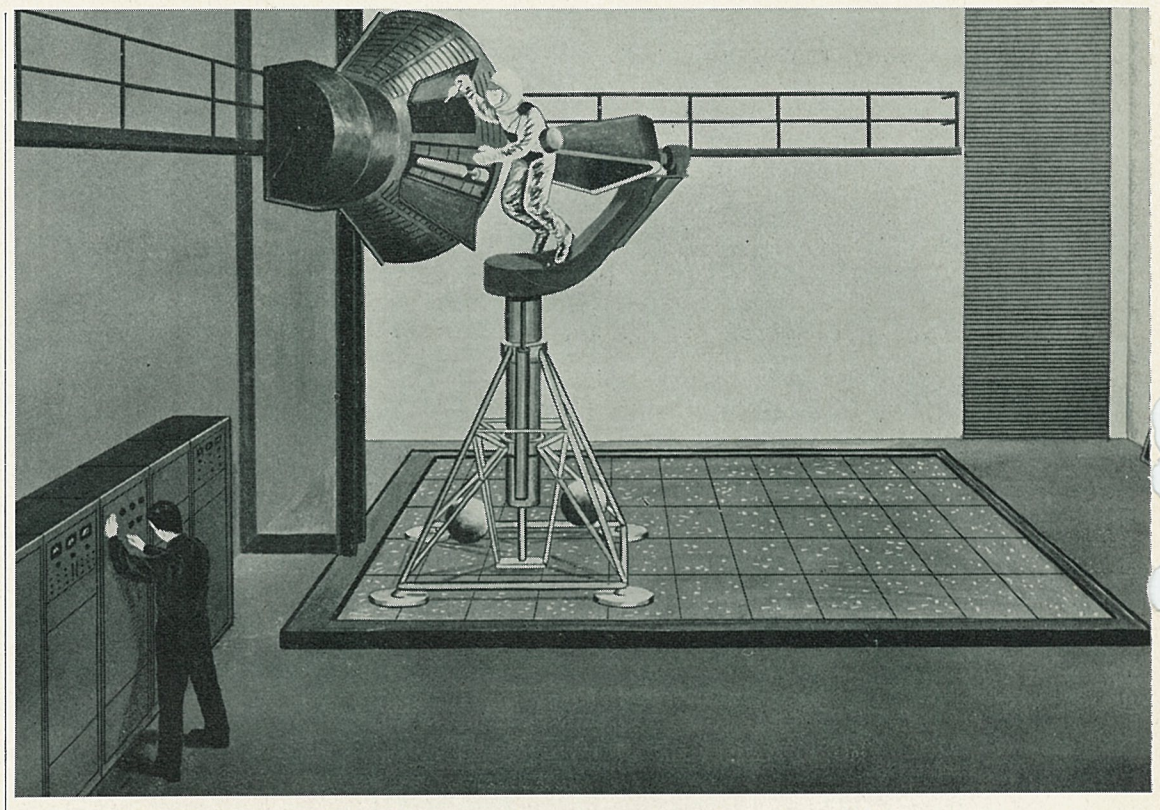
Dr. T. J. Gooding is heading the study group.

In a coaxial plasma engine electrical energy (provided by a nuclear reactor in space travel) is stored in capacitors, then rapidly discharged into gas which has been pulsed between two coaxial cylinders. Electric currents, as high as 500,000 amperes, produce magnetic forces which accelerate the hot gas out of the engine at a velocity of 200,000 mph.

Bruce Hayworth has designed the special test facility. It includes a vacuum tank six feet in diameter and 14 feet long with a pumping speed capable of simulating an altitude of approximately 60 miles with the engine operating at a power level of 100 kilowatts.

Capacitors are outside the tank, while the coaxial plasma engine extends inside the vacuum chamber.

Investigations are being planned to study the erosion rates of the electrodes in the gun and how this erosion can be minimized; the power losses and temperature effects in the engine; and measurements of the thrust developed and the propulsion engine efficiency.



FRICTIONLESS SIMULATOR — "Astronaut" repairs spacecraft under weightless conditions of space as simulated in new Manned Free-Space Dynamic Simulator now under construction at GD/Astro. Disc-like "air feet," frictionless air bearings, are visible in this artist's rendering of device in use. Simulator will provide a full 360 degrees of pitch, yaw and roll, plus horizontal movement in any direction over 25 by 33-ft. floor.

Systems Command Task Group Confers At San Diego Meet

The Air Force Systems Command-sponsored Task Group No. I of the Weapon System Effectiveness Industry Advisory Committee met last month in San Diego.

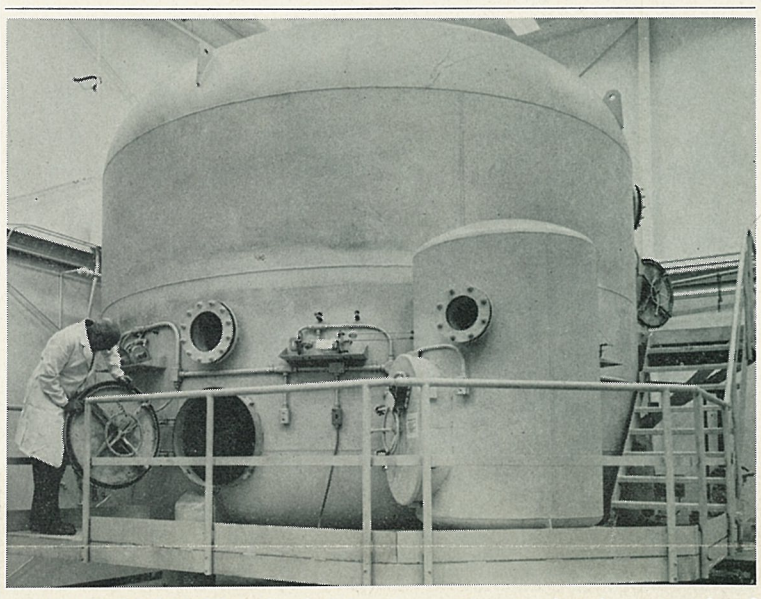
Formed by direction of the Secretary of the Air Force, this group makes recommendations to enable more accurate forecasting of weapons system effectiveness from inception to inventory.

Lt. Col. N. L. Murray, BSD, Norton AFB, presided over the group made up of industry and military members.

D. R. Archibald, Astro manager of reliability control—AWS, is General Dynamics representative on the committee.

TERRIER MISSILE PRINTS ARE AVAILABLE FREE

Color prints of the Pomona-built Terrier surface-to-air missile are being given away to anyone who wants them at Convair employee services, Bldg. 32, Plant 1. They may be picked up at the insurance counter.



HOME IN SPACE — Technician inspects entry hatch on two-level space station being outfitted for tests of life support system at GD/Astronautics. Laboratory facility will be used to proof system for sustaining four men in space for a year.

GD/Astro Building Weightless Facility

The closest possible approach to conquering gravity on earth will be accomplished in a new facility under construction at GD/Astronautics.

The new facility, known as the Manned Free-Space Dynamic Simulator, will simulate the weightless conditions of space for study, design, and research.

The simulator will permit men and machines to move on frictionless air bearings in any direction so that an "astronaut" performing a task will tumble about just as he would in space unless he is constrained. The facility is scheduled to be operational by Dec. 1.

The first prototype will include a device, built like a kitchen stool, which will float on four "air feet" to move across a slick floor without friction and provide horizontal movement in any direction. A cradle mounted above the feet will rotate on an air film so it can swing friction-free in any horizontal direction.

A man-carrying bracket attached to the cradle will also ride on air, enabling the "astronaut" to tumble from side to side without friction. The harness holding the man in the bracket floats frictionless on air, permitting him to tumble head-over-heels or backwards. Each bearing has its own supply of air so there will be no restraining hose to inhibit movement.

Normally, it is impossible for man to achieve the feeling of weightlessness on earth since a 1-G condition is always present. The device, by eliminating virtually all friction, achieves the equivalent of a weightless condition between the "astronaut" and his work. The only friction remaining is that of the drag of the atmosphere which is considered negligible.

The simulator will provide full 360 degrees of pitch, yaw, and roll, such as that to which a spacecraft is subjected, plus horizontal movement in any direction over the 25 by 33-ft. floor. Four feet of vertical movement, with essentially zero friction and zero spring constant, will be accomplished by a frictionless air spring.

The simulator will be approximately 15 feet tall from its "air feet" to the "astronaut's" center of suspension. It will be designed to carry a load of 500 pounds, enough to hold a large man wearing a spacesuit and biopack plus any tools or equipment he may need to have with him.

The building housing the facility will be 60 by 40 feet with a 28-ft. ceiling. The floor on which the simulator floats will be of terrazzo, very smooth and flat to within one or two thousandths of an inch in 10 feet.

The air bearings are so sensitive that any slight tilt or waviness in the floor could cause the entire device to coast to the lowest spot. A thick concrete subfloor isolated from the general building floor will break up internal vibration and protect the smooth surface from building settling.

Activities to be studied in the new facility include: controlling vehicles in the rendezvous and docking of two spacecraft; performing maintenance and repair, both inside and outside the space vehicle; moving of both crewmen and supplies between rendezvous vehicles; and tethering with lines and extensions, including the movement of equipment, personnel, and even the vehicles.

High-Speed X-Ray Movie System Checks 'Health' of Spacecraft Parts

Complex missile and spacecraft parts operating under simulated flight conditions are being probed by high-speed X-ray motion picture equipment at GD/Astronautics.

Reliability engineers and test personnel utilize information gained from this combination of medical, photographic and laboratory techniques in much the same manner as doctors viewing the internal organs of a patient.

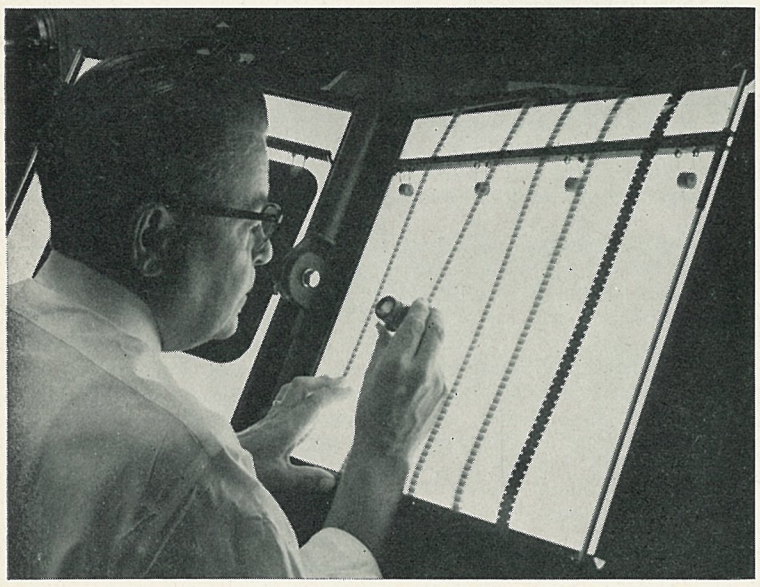
That is, they pin-point problem areas or give the part under study a "clean bill of health."

Failure analysis is a key objective of this technique, although it has been used successfully in other types of laboratory test programs as well as in certain manufacturing studies.

While laboratory equipment creates flight conditions that may include pressure, vibration, extreme temperatures, etc., parts are put through their paces just as they would perform on flights.

Films taken at from 36 to 2,000 exposures per second show just what is happening. In re-running the film for analysis, it can be used as a motion picture or stopped and observed frame-by-frame in special equipment.

Hal Reavely of the motion picture and television department at Astro is credited with perfecting the technique.



UNDER STUDY — L. A. Milton, Astro reliability group engineer, uses magnifier to examine quality of high-speed X-ray motion pictures taken of missile part under simulated operating conditions. Technique, developed at Astro, allows analysis of parts, especially part failures.

Work Proceeds On Two-Level 'Space Station'

Components and subsystems capable of sustaining "astronauts" for prolonged periods are now being installed in a two-level "space station" simulator being outfitted at GD/Astronautics.

Pressure tests on the spacecraft cabin test hull were completed last month.

The laboratory-based station will be used for testing a life support system, being built by GD/Astro under contract to National Aeronautics and Space Administration's (NASA) Langley Research Center, Hampton, Va.

The research program is under the overall direction of NASA's Office of Advanced Research and Technology, Washington, D.C.

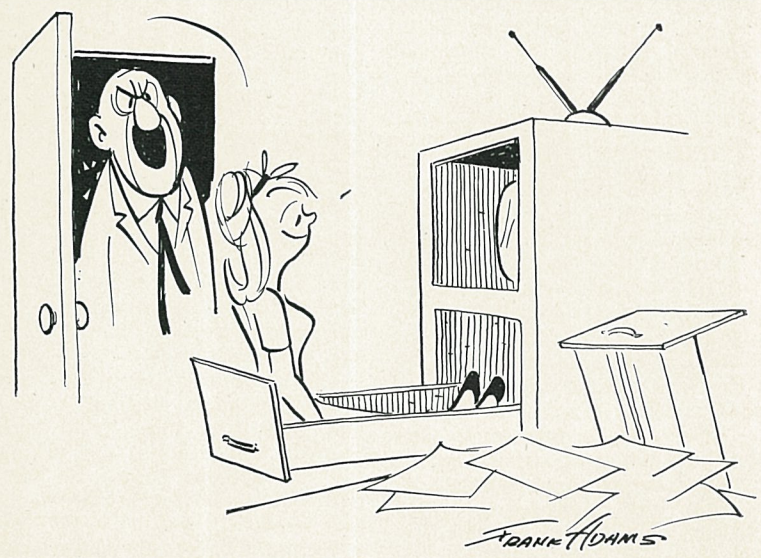
Interior volume of the station is 4,159 cubic feet, while an adjacent air lock has a 90 cubic foot volume. It is more than 18 feet in diameter, and nearly 18 feet high.

Upper deck of the two-story station is designed for living quarters and recreation, while the lower level is a work area.

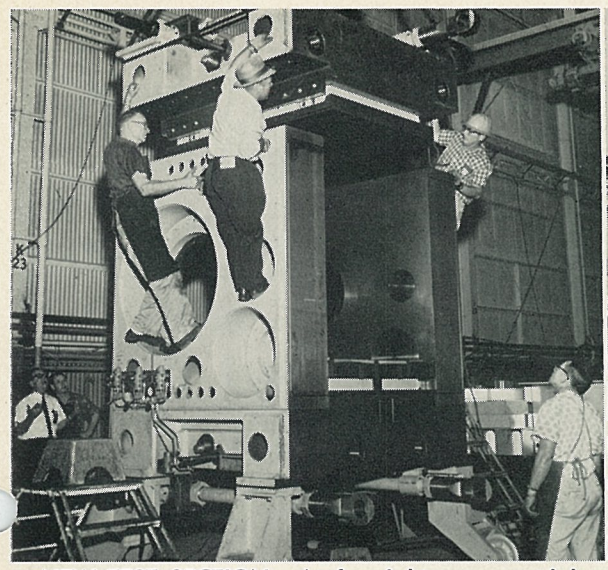
Visiting New York? Be Sure of Hotel

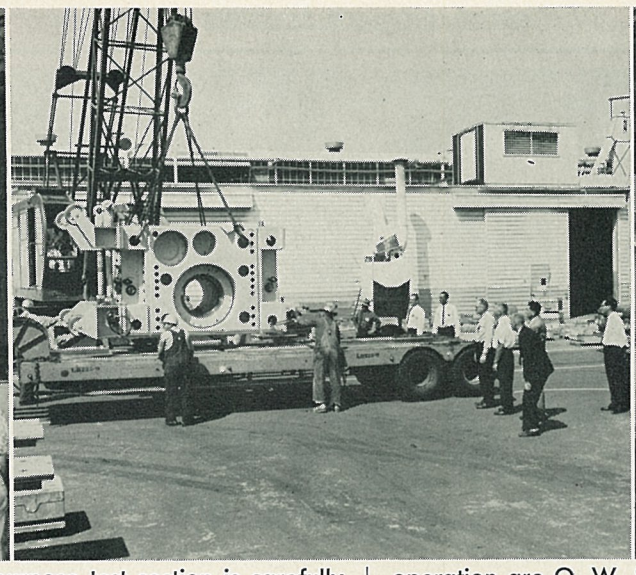
General Dynamics Corporation employees planning visits to New York City on business during the summer months are being cautioned not to arrive without advance confirmed hotel reservations.

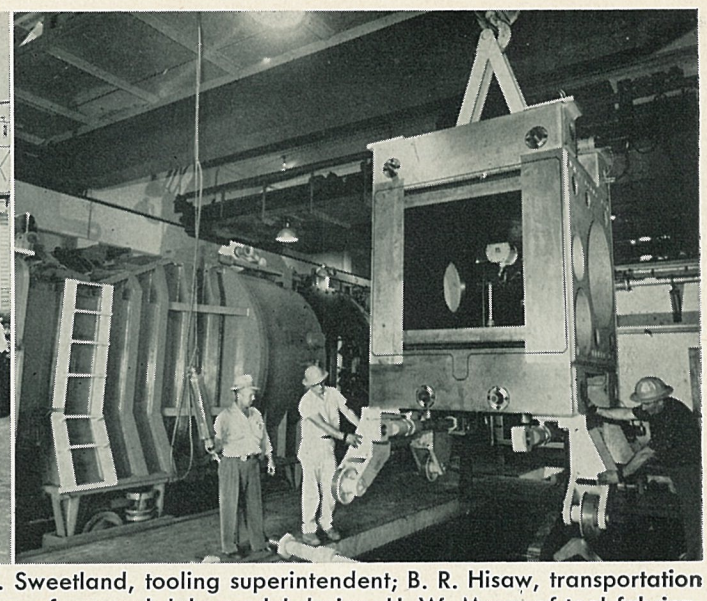
Carlton M. Barlow of the Corporate Office advises rooms are extremely hard to find due largely to World's Fair crowds.



"Miss Gilstrap!"







NEW TEST SECTION—At far right, new special purpose test section is carefully lowered into position at General Dynamics' high speed wind tunnel at San Diego. Left shot shows test section in final stages of completion in Convair tooling department which won subcontract over three outside companies. Center photo shows 51,000-lb. section loaded sideways onto truck for move to seaplane ramp. Viewing operation are O. W. Sweetland, tooling superintendent; B. R. Hisaw, transportation administrator; T. Olson of research labs model design; H. W. Myers of tool fabrication; W. H. Skoglund, construction engineer; M. C. Val Dez of safety; D. T. Ostenso, high speed wind tunnel design specialist. Section will be used for specialized and unusual tests.

GD

SAN DIEGO EDITION
(Serving GD/CONVAIR
and GD/ELECTRONICS)

GENERAL DYNAMICS NEWS

Vol. 17, No. 16 PUBLISHED BY GENERAL DYNAMICS CORPORATION 52 Wednesday, July 29, 1964

Safety Standings

Division achieving best record:

Current month: (1) Pomona division, (2) Material Service, (3) Fort Worth. Year to date: (1) Pomona, (2) Electronics-Rochester, (3) Convair.

Division achieving best improvement:

(1) Pomona, (2) Stromberg-Carlson, (3) Canadair.

LEONARD NEW COST REDUCTION AUDITOR

D. H. Leonard has been named cost reduction auditor at GD/Convair by J. D. Milling, division controller.

Leonard (Dept. 92) is charged with auditing all savings claimed by departments on cost reduction reports to make certain that figures reflect realistic net gain to the division. He assumes these duties in addition to his regular tasks in spares price review.

He will work closely with H. P. Williams, Convair manager of value control, and value control and cost reduction coordinators on all department cost reduction projects.

Audited reports will be used for final compilation of periodic reports going to Corporate Officer under the company's Cost Reduction/Profit Improvement Program.

SAVINGS CHECK — D. H. Leonard (left), Convair's newly-named cost reduction auditor, consults with R. H. Williams, Resources Economics coordinator, on savings expected from ES/CIP program.

HAIL AND FAREWELL — American Airlines Convair 240s start new role as they join Trans-Texas Airways (upper shot) for short haul passenger operations across southern states. Texas airlines has purchased 25 of AA's 240s. Lower shot shows group bidding farewell to AA 240 at Tulsa. Third from left is Convair's R. K. Hall, first tech rep assigned to 240 at American's Tulsa base. Third from right is Glen Arner, Convair rep supporting American's 990 operations at Tulsa.

Convair-Liners Begin Trans-Texas Career

A new role begins for Convair 240s which have served faithfully over the years with American Airlines as the last of AA's Convair-Liners change their stripings for a fresh start under the colors of Trans-Texas Airways.

Trans-Texas has purchased the last 10 of American's 240s, bringing its total Convair-Liner fleet to 25. By the end of this year all will be flying over the southern airline's short hauls connecting the Houston main base with other Texas cities and points in New Mexico, Arkansas, Tennessee, Mississippi, and Louisiana.

Altogether, American purchased 80 of the 175 commercial-version 240s built at Convair's San Diego division. During their years of service American 240s flew over 9 million revenue passenger miles, carrying 35,630,000 passengers.

And, the strong and sturdy transports now are rejuvenated for a new lease on life which will see them carrying many more passengers for years to come as the mainstay of Trans-Texas' commercial operations. A recent structural analysis of the Convair-Liner airframe shows that it is good for another 15 or more years of economical service.

Final American 240 flights were June 31, just 16 years after the Tulsa-based airline inaugurated Convair-Liner service.

(Continued on Page 2)

Corporation Issues Standard Guidelines For Cost Reduction

Guidelines defining General Dynamics' overall cost reduction program and spelling out standardized procedures for reporting savings are now in the hands of all division managers.

According to Max Golden, Corporate vice president, the Corporate Cost Reduction/Profit Improvement Program is consistent with Department of Defense requirements issued by the Office of the Assistant Secretary of Defense.

"General Dynamics' policy is to deliver the best possible product in the shortest possible time at the lowest possible cost. The objective of the program is to continue cost reduction in every segment of the company's business. A Corporate-wide cost-conscious posture will improve our profit

(Continued on Page 2)

High Speed Tunnel Improvements Due

General Dynamics Corporation's high speed wind tunnel, located at San Diego, is expanding its capabilities with a new special purpose test section due to go into actual operation next week.

The new test section, designed and built at GD/Convair, makes possible a wide range of specialized and unusual tests which would be difficult to accomplish with standard equipment, said W. T. MacCarthy, Convair manager of research laboratories responsible for wind tunnel operations.

The added capability will play a major role in new and advanced programs now in the works at several GD divisions. As a Corporate facility, the high speed wind tunnel runs tests on top priority aerospace programs for Convair, Astronautics, Fort Worth, Pomona, Canadair, as well as for other companies.

Primary purpose of the new test section is to provide a facility for special tests on operating propulsion systems, analyses of bomb and tank trajectories, and panel flutter.

The section, installed last week, provides a separate, accessible facility for setting up and checking out complex models outside of the main tunnel, so that there will be no interruption in testing due to long-installation time.

When models are installed and checked, the section is swung by cranes to a position behind the tunnel's standard test section where it will alternate with the transonic testing section.

Ten portholes, two on both top and bottom and six on the sides, give complete access for installation at any point and provide windows for photographic work.

(Continued on Page 2)

NASA, Convair Personnel Train For Little Joe II

A training program this month to acquaint NASA and GD/Convair groups with the Little Joe II reaction control system "spun off" from a scheduled checkout of the system's support equipment and operating procedures.

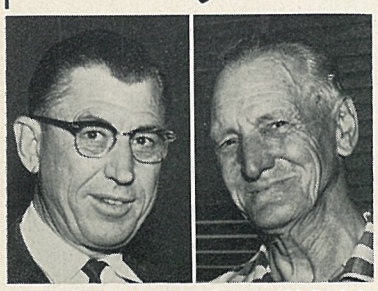
Eight NASA engineering and quality control personnel and another ten Convair technicians and engineers who will be involved in launch operations of the third Little Joe II vehicle, first equipped with the reaction control system, attended the school during the last two weeks. These men, all with a "need to know," were invited to the San Diego division to participate in an actual checkout of the system.

Classroom sessions, conducted by Clyde Glasson, Jim Lessig, and H. B. Riggs, Little Joe II engineers, familiarized attendees with the system and properties of its hydrogen peroxide fuel. The

(Continued on Page 2)

"LAB" SESSION — NASA and Convair engineers, inspectors, technicians, who will be assigned to reaction control system at next launch of Little Joe II, gather at GD/Convair test cell for training on actual system.

Log Book Entries



Arnold J. Woods, Dept. 400-1, left, and Stephen Gardner, Dept. 25-2, received 25-year Convair service emblems this month.

Awards

CONVAIR

Employee Suggestion Awards approved for periods ending July 10 and July 17.

Dept. 42, R. H. Feeley, $10.
Dept. 48, R. J. Harris, $10.
Dept. 131, C. R. Yokley, $10.
Dept. 141, C. E. Rice and F. J. Hammack (joint award), $13.32 each.

Cost Improvement Proposals approved for the same period.

Dept. 6, W. F. Strasburg.

New Section Will Improve Wind Tunnel

(Continued from Page 1)

Models can be mounted from ceiling and floor through 24-inch diameter openings.

Other features designed into the facility by model design group of Convair's research labs include proximity plates to protect models from high Mach numbers of shock waves during test starts. The floor of the tunnel has been designed as a boundary layer research tool for study of air flow over surfaces.

Convair's tooling department won the subcontract for building the precision-machined steel part in competition with three other companies. The division's bid of $52,695 was $20,000 lower than the next lowest bidder and $100,000 under the highest estimate. Additional savings were realized by use of remnant material on hand.

O. W. Sweetland, tooling superintendent, said that he is most satisfied with his crew which met all performance requirements equally as well and possibly better than an outside vendor, since absolute control was possible in-plant.

Time schedule was well within the 112-day limit, with the section completed and ready for move-out to the seaplane ramp site a week ahead of time.

Each part had to be machined individually and held to extreme tolerances to keep mismatch allowance to .006 of an inch when all parts were bolted together.

The 51,000-lb. section is the heaviest piece of precision type of equipment tooled within the plant, although similar precision work was accomplished for the SATS mats line.

RUBOTTOM ATTENDS APPRENTICE MEET

H. W. Rubottom, head of Convair educational services, attended the quarterly meeting of the California Apprenticeship Council in Santa Monica last week, July 23-25. Rubottom is a commissioner on the council which is comprised of 18 members representing industry, education, and labor throughout the state.

Service Emblems

Service emblems due during the period July 16 through July 31.

Twenty-year: Dept. 15-0, Nora L. March; Dept. 25-2, Leonard Davis; Dept. 26-2, I. F. Rollins; Dept. 34-7, Lucy S. McMinn; Dept. 42-5, Sarah E. Smerdon; Dept. 48, R. P. Blakeslee, Edna P. Miller; Dept. 131, E. D. Ingold.

Fifteen-year: Dept. 3-1, L. G. Reeb; Dept. 6-41, W. R. Lee; Dept. 23-1, E. D. Green; Dept. 25-1, R. F. Graham; Dept. 34-6, Ruth A. Louden; Dept. 48-11, Dorothy H. Mills.

Ten-year: Dept. 15-0, Callie D. Burbage; Dept. 401-4, T. B. Johnson.

HOLLOMAN AFB

Ten-year: Dept. 313-0, L. A. Garrett.

ELECTRONICS

Ten-year: Dept. 22-00, L. G. Mauseth.

Births

HOYT—Daughter, Mary Lucretia, 8 lbs., 8 ozs., born June 27 to Mr. and Mrs. W. E. Hoyt, Dept. 23.

Deaths

ALKIRE—George A., Dept. 14-4. Died July 18. Survived by wife, Bethel, and two daughters.

Retirements

BUTTS—Newell D., Dept. 401-1. Seniority date Sept. 8, 1952, retirement effective May 21.

GARDNER—Stephen, Dept. 25-2. Seniority date Aug. 16, 1948, retirement effective July 10.

MEISTER—Conrad, Dept. 401-1. Seniority date April 7, 1953, retirement effective May 17.

MOON—Benjamin L., Dept. 14-4. Seniority date Aug. 7, 1950, retirement effective May 26.

MUNDEN—Harold R., Dept. 3-1. Seniority date June 2, 1951, retirement effective June 30.

SALLEY—Grace M., Dept. 201. Seniority date Oct. 27, 1950, retirement effective May 9.

STANFORD—Donald E., Dept. 48-78. Seniority date Oct. 5, 1955, retirement effective May 19.

WHITE—Edward G., Dept. 48-51. Seniority date Sept. 19, 1941, retirement effective June 30.

Personals

I wish to express my appreciation to the Convair Management Club for the beautiful flowers sent to my wife, Lyla, at Scripps Hospital upon the arrival of our baby daughter. At the same time I would also like to acknowledge the moral support given me at the death of my father, and for the floral tribute sent to his funeral in Hollywood.

W. E. Hoyt, Dept. 23.

* * *

We, the family of Henry McLeod Birse, known as Scotty, do thank you for the beautiful floral spray.

Margaret Birse and family.

* * *

We wish to acknowledge, with deep appreciation, the kind expressions of sympathy from Convair friends.

Mrs. Robert Wing and family
Mrs. O. E. Wing and family

* * *

We wish to express our appreciation and thanks to the Timekeeping Department, and many other Convair friends, for the beautiful flowers and expressions of sympathy upon the death of my father, Frank Burns (retired).

Mrs. G. Cordle and family.

* * *

We wish to thank our many Convair friends for the flowers, messages, and expressions of sympathy received at the death of our husband and father.

Mrs. George Alkire and daughters.

CON-TRIB-CLUB DRIVE TO ASK 'FAIR SHARE'

Annual Con-Trib-Club drives for GD/Convair and GD/Electronics people in San Diego will get under way the latter part of August to give all a chance to give their "fair share" to those less fortunate.

The campaigns will be conducted simultaneously at the two divisions and goals will be in line with United Community Services adjusted "yardstick" for individual donations.

To provide adequate funding for all UCS agencies, suggested rule-of-thumb contributions are a minimum of one per cent of salary from flat-salaried persons, or equivalent of five minutes paid work-time a day; 0.6 per cent of hourly wages, or three minutes a day.

General Dynamics NEWS

Published by General Dynamics Corporation, One Rockefeller Plaza, New York 20, N. Y.; with editorial headquarters at 3302 Pacific Highway, San Diego 12, Calif., P.O. Box 1950, telephone 296-6611, ext. 1071, Logan Jenkins, editor-in-chief.

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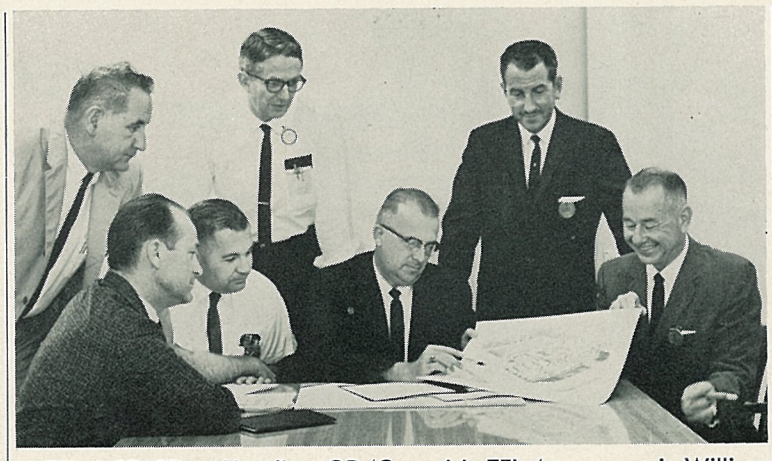
Affiliated editions of General Dynamics NEWS are published in Rochester, N. Y., covering GD/Electronics and Stromberg-Carlson, editorial offices, 100 Carlson Road, HUbbard 2-2200, ext. 2555. Fred E. Voss, editor; and at Groton, Conn., covering GD/Electric Boat, editorial offices at Groton, HIlltop 5-4321, ext. 300 and 513, Joseph Tracey, editor.



TEL-4 STAFF — Heading GD/Convair's TEL-4 program is William Dorrance, program manager (seated, center), who displays sketch of Central Telemetry Bldg. to go up on Merritt Island, Fla., to top program administrators: from left, Roy Lyman, R. B. Thompson, Dave Kahler, R. A. Bohler, M. E. Kruger, Chet Dutton.

Contributors to TEL-4 Success Are Lauded

As GD/Convair moves forward rapidly on its new $3-million TEL-4 program and sets the wheels in motion for the giant task of providing advanced telemetry instrumentation for launch operations at the Air Force Eastern Test Range, credit is directed to the group of men heading up the project from its inception, over a year ago.

William T. Dorrance, Convair manager of electronic systems and TEL-4 program manager, emphasized that the present contract is due entirely to the success of the Phase I task, concluded the first of this year under a study and design contract from Pan American World Airways, Inc., and to efforts of the Convair specialists who developed unique methods of integrating the vast amount of receiving and recording equipment.

"I feel very strongly that the capable group of engineers assigned to the development project were largely responsible for our receiving the second contract," he said. "And, I am most optimistic of further add-on contracts which will project the program into 1966."

Dorrance went on to point out that engineering was assisted in every way possible throughout Phase I, and Phase II proposal stage, by all other departments affected, namely, material, estimating, art and editorial, program plans and systems, and blueprint reproduction.

Administrative staff members reporting to Dorrance are: D. N. Kahler, deputy program manager—engineering; C. J. Dutton, deputy program manager—off-site office (Merritt Island, Fla.) and contract administrator; R. B. Thompson, deputy program manager—operations; R. A. Bohler, change and cost control manager; M. E. Kruger, material administrator; and Roy Lyman, quality control supervisor.

Lyle McClain, technical group engineer, and R. F. Myers, group engineer, drawings and documentation, are responsible for engineering and design.

Key personnel playing an important part in the development, and consequent success of the design phase, are design specialists Harold Brown, instrumentation; Eric Woods and P. E. Marenholtz, electronics.

Senior engineers who developed the logic and control system necessary to control and assign the some 400 racks of government-furnished equipment, as well as the display systems are D. J. Frye, J. F. Carbone, J. K. Guthrie, D. K. Hall, L. R. Hixon, A. L. Jenkins, G. A. Kimball, C. MacIntyre, R. E. Moore, W. A. Schmitz, W. G. Walker, R. V. Minutello, and R. A. Kosic.

In the course of the current program they will be instrumental in checkout and testing of the government-furnished equipment itself.

R. J. Collette will supervise Convair operations involving assembly and checkout of equipment on-site.

Paul Dudney is operations supervisor at Merritt Island, site of the telemetry receiving and recording station to support and monitor AF launch operations.

Both Collette and Dudney report to Thompson.

Dudney will be based at Merritt Island by the first of November. Over 40 technicians, assemblers, and installers will be under his supervision. Fifteen engineers at Merritt Island will coordinate with the approximately 20 assigned to the project at San Diego.

Convair's San Diego task between now and March of next year will be assembly, test, and verification of Convair-furnished equipment. This mainly involves five control operator positions, the master display board, the remote patch matrix, and the logic control system.

The off-site task entails receiving, checkout, and installation of government-furnished instrumentation and the marriage of this equipment with Convair systems.

Corporation Issues Cost-Cutting Guidelines

(Continued from Page 1)

picture and contribute to the success of the Defense Department's program to reduce the cost of defense procurement."

The entire cost reduction picture has been divided into six major program areas: value control which encompasses all value engineering efforts; procurement cost improvement or "buying only what is needed at the lowest sound price"; productivity improvement, best use of labor for development and manufacture of products; resources economics/conservation, aimed at reducing cost and preventing waste in such areas as utilities, tools, supplies, salvage; Employee Suggestion/Cost Improvement Proposal programs; and management improvement, to achieve substantial savings through better operations, controls, or organization.

Cost reduction managers at each division will be responsible for continuous effort and reporting of accomplishments. Corporate Office will review the division programs periodically and provide direction and assistance as required.

NASA, Convair Personnel Train For Little Joe II

(Continued from Page 1)

three instructors were joined by W. M. Thomas, also of Little Joe II engineering, at the test cell for actual firing of the motor.

During the next five days the group put all support equipment, including servicing trailer, hose kits, vacuum dry system, to the test as they went through the entire routine of defueling, purging, and leak checks, as well as motor performance check. Meanwhile, they thoroughly surveyed all OCIs (Operations Checkout Instructions) for the system and its support equipment.

NASA participants, all from White Sands Missile Range, N.M., were E. H. Jones and R. J. Kowalczyk, test operations; Larry Davis and R. D. Souders, propulsion systems; M. H. Osborn and F. W. Warner, hydro-mechanical systems; J. L. Lashaway and J. E. Marion, quality control.

Convair men were: R. M. Bloom, D. C. Anderson, Steve Jurchenko, F. W. Wundrow, launch operations engineers; H. F. Whisman, E. R. Compton, D. D. Guest, Obid Ray, technicians; A. J. Gagliardo and A. L. Spears, quality control inspectors.

Convair-Liners Begin Trans-Texas Career After AA Service

(Continued from Page 1)

R. K. Hall, in charge of Convair transport field service, was among the group of Convair 240 veterans meeting the commemorative flight homeward-bound from Cleveland to Tulsa to honor the well-loved craft. Hall went to Tulsa with the first Convair 240 in 1948 and remained there for nearly 8 years as Convair's technical representative in support of American's 240 fleet. O. W. Harper, Convair manager of customer support, was assigned to American's New York area as technical representative during early 240 days.

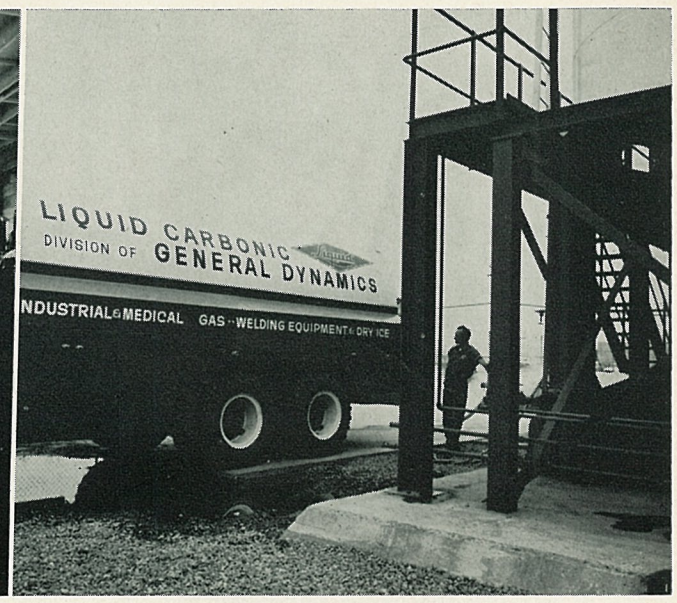
One of the long-time American Airlines 240 pilots, Capt. Ralph Long, spoke for all pilots who flew the craft when he said that the Convair plane "didn't have a single bad habit."

"It's one of the most honest airplanes I've ever flown. It tells you what it's going to do way ahead of time and it always does it. It has beautiful aileron control. It's the most beautifully handling crosswind airplane I've ever flown."

In bidding farewell to AA 240s as they passed on to Trans-Texas, Long and other 240 pilots pointed out that "passengers loved the 240 from the beginning."

American maintenance men added their plaints to the goodbye dirge: "Passing of a good airplane is hard to take. Newer aircraft will come and will probably be as popular as was the Convair. Still, there'll never be another like the CV-240!"

VIP TOUR—Brig. Gen. K. I. Curtis and other Army Air Defense Command officers from Ent AFB, Colo., discuss command and control equipment during recent visit to GD/Electronics data products facility at San Diego, Calif. Viewing S-C 1090 computer display console are Gen. Curtis (center), Col. S. D. Young, Col. O. P. Anderson, Capt. F. H. Olson, Lt. Col. J. T. Brakefield. GD/E men conducting tour are J. T. Stebbins, electronic design—displays; J. H. Gurley, manager - Army requirements; J. H. Redman, manager of government research - data products; J. W. Colvin, manager - plans and programs; R. A. Glaeser, manager of command and control systems engineering group.



SAFE AND EFFICIENT — Deliveries of industrial gases to Liquid Carbonic customers may be made to storage vessels at the customer's location in huge liquid and high pressure trucks, as in photos at left and right. This vehicle, being loaded by driver-operator Tom Lusk from storage tank at San Diego branch has 60,000 cu. ft. capacity at 10,000 psi. Other deliveries are made with gas "packaged" in convenient steel cylinders such as those handled by Bill Cassell, center photo.

Industry, Medicine, Technology: All Look To Liquid Carbonic

(On this page is another in a continuing series of articles describing history and products of General Dynamics divisions.)

On a spring day in 1889, the first steel cylinder of Red Diamond compressed gas was produced in a small plant in Chicago, and a new American industry was born.

From that humble beginning—conceived a few months earlier with the formation of the Liquid Carbonic Acid Manufacturing Company in Terre Haute, Ind., on Nov. 13, 1888—has grown General Dynamics' Liquid Carbonic Division, the world's largest producer of carbon dioxide.

In those early days, CO_2 was mainly identified with the sparkling bubbles in soda pop. Druggists and bottlers usually made their own supply, using an inefficient and uneconomical process.

John A. Edwards, president of Liquid Carbonic Division.

The engineers and chemists who joined the young company in those early days were dealing with a new concept: the manufacture and marketing of a "packaged" gas which would be safe, convenient and economical. Their idea was to make this in a central location, and distribute it in convenient steel cylinders.

Today, while CO_2 remains a cornerstone of Liquid Carbonic's business (if all the CO_2 produced by Liquid Carbonic in a year were used in carbonated beverages, it would fill 120-billion bottles — 111 "six-packs" for every man, woman and child in the U.S.!), the division produces a broad spectrum of industrial and medical gases and other products as well.

In the 1930s, the company decided to offer all important industrial and medical gases necessary to 20th Century industry. A continuing program of expansion into strategic areas has assured Liquid Carbonic's position in many key industrial and hospital markets in the United States and Canada.

Oxygen, hydrogen, nitrogen, acetylene, argon and nitrous oxide have been manufactured by Liquid for the past quarter-century and distributed together with efficient apparatus for their use.

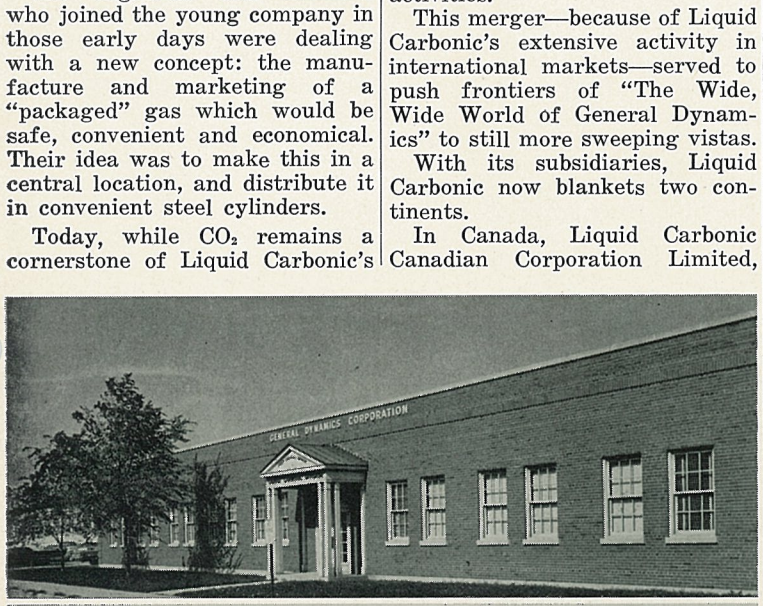
LIQUID CARBONIC HAS INTERNATIONAL SCOPE

In 1957, Liquid Carbonic became a division of General Dynamics, achieving for the Corporation an improved balance between commercial and defense activities.

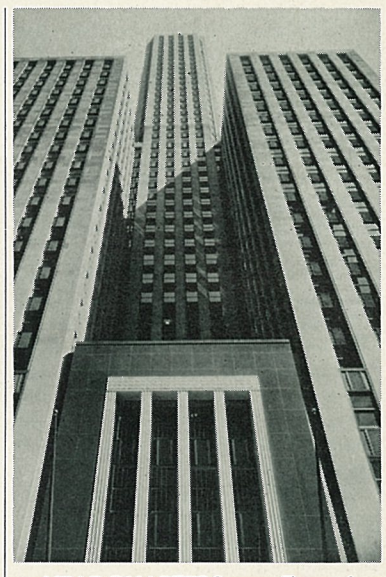
This merger—because of Liquid Carbonic's extensive activity in international markets—served to push frontiers of "The Wide, Wide World of General Dynamics" to still more sweeping vistas.

With its subsidiaries, Liquid Carbonic now blankets two continents.

In Canada, Liquid Carbonic Canadian Corporation Limited, based in Montreal, operates eight CO_2 plants and thirteen industrial/medical plants and depots.



FITTED FOR SERVICE — In top photo is Liquid Carbonic facility on Chicago's southwest side where division maintains research and development lab, extract manufacturing operation and central engineering staff. Truck fleet, lower photo, is typical of branch operations throughout country which bring Liquid Carbonic service to customers everywhere.



HEADQUARTERS — Towering Field Building in heart of Chicago's "Loop" houses ninth floor administrative offices of Liquid Carbonic Division.

Since its first South American investments were made in 1930, the list of Liquid Carbonic affiliates on that continent has grown to 12, with 32 CO_2 plants and 13 industrial gas (oxygen, hydrogen, acetylene) plants now operating in 12 Latin American countries.

Liquid Carbonic President John A. Edwards reported that last year alone these facilities achieved a record-setting 39 per cent increase in production capacity.

A new addition in Buenos Aires has doubled the capacity of the Argentine plant to make it the largest CO_2 facility in South America.

Lima, Peru, reported a 100 per cent increase in CO_2, and 40 per cent increase in oxygen capacity in 1963.

Early this year a new oxygen plant went into operation in Cochabamba, Bolivia; also, a new hydrogen plant has just opened in Kingston, Jamaica.

Latin America's largest liquid oxygen plant will soon go on stream in Mexico, following opening of a major CO_2 plant there last year.

CRYOGENICS RESEARCH POINTS TOWARD FUTURE

Significant inclusion among the 2,900 employees of Liquid Carbonic is a team of seasoned cryogenics engineers, working on projects to which the division has assigned considerable importance.

Cryogenics (the study of the production and effects of extremely low temperatures) is a key factor in the nation's space effort: to increase knowledge of space flight it is essential to know how materials will behave under temperatures approaching absolute zero in the vastness of space.

Other Liquid Carbonic specialists include men with extensive experience in commercial refrigeration, metallurgical research (stainless steels, aluminum and titanium), heat transfer and power plant work.

The division is also engaged in intensive research on the design and use of air separation equipment, "heavy water," and liquid oxygen missile support facilities.

Typical of Liquid Carbonic research achievements is an exclusive Vapor Retention System for supply of high-pressure cryogenic gases without loss of product. Embodying a patented cryogenic pump, the "VR" system was originally used for oxygen but has recently been extended to converting liquefied nitrogen and argon to gas.

It is probable that cryogenics, in which "Liquid" plays an important role, will open the door to undreamed-of industrial horizons.

INDUSTRY HAS IMPACT IN EVERY HOUSEHOLD

Fifteen years ago, Liquid Carbonic served about 20 industrial categories. Today this has increased seven-fold to more than 150, with much of the growth attributable to the nation's burgeoning food-processing industry.

The carbonation of soda pop was the forerunner of an explosive revolution in American eating habits, as the division teamed with food processors in its search for better ways of doing things through use of its products.

Fresh meat; instant coffee; cake and cookie mixes: all use CO_2 in their preparation and processing.

Perishable goods are better preserved because gases cool the vehicle in which they travel. And frozen food — the by-word of most modern housewives — owes much of its development to innovations in the uses of industrial gases.

Now under study is a liquid nitrogen "bath" technique for quick-freezing foodstuffs which cannot be successfully frozen by conventional methods. Fresh tomatoes, for example, may some day be handled in this manner.

Also for tomorrow's appetites, industrial gases are now heralding a still newer form of food preparation. Freeze drying (rapid freezing, followed by removal of liquids in crystal form in a vacuum) now promises long preservation of even cooked foods without refrigeration!

Golfers, too, owe a nod of acknowledgment to industrial gas: the liquid center of a golf ball is frozen with CO_2 before it is wound with latex.

And the use of CO_2 improves the rubber used in auto tires, and in paint for houses.

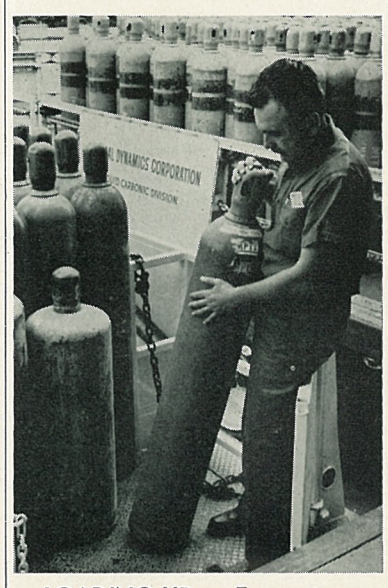
On the industrial level, foundry operations have been radically modified since carbon dioxide can be used to harden cores and molds in a fraction of the time previously required.

The oxy-fuel gas flame has become the strong right arm of metal fabrication. Shielding gases — argon, helium, CO_2 — assure welding techniques unknown two decades ago.

Oxygen lancing is a growing technique in steel making.

Electronic components are produced under an atmosphere of nitrogen or argon, and hydrogen has become a key agent in fusing glass and in refining rare metals.

The division's medical gases aid physicians in alleviating pain and speeding the recovery of patients in modern hospitals.



LOADING UP — For customers using industrial gases in cylinders, A. V. Valdez loads freshly filled containers on truck at San Diego branch for delivery.

Superior Service Is Aim

Headquartered in Chicago, Liquid Carbonic today has facilities in 137 cities, and regional sales offices at Harrison, N.J., Atlanta, Cleveland, Chicago, Redwood City, Calif., Los Angeles, Detroit, Houston, Philadelphia, and Cambridge, Mass. From a network of supply centers, the division offers product delivery in bulk liquid or gaseous form.

Seizing on technological advances in the 1940s, Liquid Carbonic became a leading designer of safe, efficient transportation and storage vessels, and now fills many hundreds of these—insulated containers located at leading industrial sites throughout the U. S. and Canada—with liquefied gases on regularly scheduled runs.

At user locations, Liquid Carbonic storage facilities range in capacity from 50 to 50,000 gallons, with each installation tailored to customer requirements.

Deliveries are made in huge transport trucks equipped with calibrated meters to indicate the volume of liquid actually delivered, and safe use of equipment at all times is assured by multiple safety valves, bursting discs and shut-off controls on various components of the station.

Liquid Carbonic's service to hospitals takes the form of medical and surgical gases: oxygen, helium, carbon dioxide, ethylene, cyclopropane and nitrous oxide, with the division providing piped-in systems for hospitals, apparatus for inhalation therapy, anesthesia and resuscitation. A corps of highly trained engineers and field representatives provides expert service to users of medical gases.

RENEW MEMORIES—Center photo shows part of some 200 former Palmdale facility people at first reunion July 19 at ARA Recreation Area. Talking over old times, at left, are Mrs. Harry Rumbaugh, George Oatman now of GD/Electronics; Rumbaugh of Astro; Mr. and Mrs. George Kuester, Convair. In shot at right are Noble Barnes of GD/E; Maj. Tom Hart (AF, ret.); Bill Zimmerman, GD/E; and Sid Brower of Astro.

$52,432 Contracts Won by GD/Convair

GD/Convair has received two government contracts totaling $52,432 for electrical supplies from the Defense Supply Agency's electronics supply center, Dayton, Ohio.

One, in the amount of $33,532, calls for 404 electrical receptacle connectors. The second contract of $18,900 is for 21 electrical plug connectors for use in electric power test sets.

The Defense Electronics Supply Center procures, manages, and supplies common parts of electrical and electronic equipment used by the Armed Services.

Veteran Inspector Frank Urban Retires

Frank C. Urban, based at Convair for nearly 20 years as Navy inspector, retires the first of August after 40 years of government service.

Urban was assigned to Consolidated Vultee at Downey in 1945 as chief inspector for the Navy. He made the move, along with other Vultee people, to the Convair San Diego site in 1947, and has made his headquarters at Plant 1 ever since.

He was lead inspector during development of the Pogo, monitored the Sea Dart, and other Navy craft, including the R3Y. More recently, he was Navy inspector on the SATS mats program.

Derby Preview Set For ARA Fishermen

Representatives of the San Diego Junior Chamber of Commerce's Yellowtail Derby committee will present a special hour-long program and present door prizes at the Astro Fishing Club's August meeting, ARA Clubhouse at 7:30 p.m., Aug. 5.

In addition, monthly fishing awards will be presented. Barbara Wall, "Miss Yellowtail Derby", will be a special guest at this affair.

RIES HEADS PHOTOGS IN SAN DIEGO COUNTY

GD/Astro men dominate offices in the recently-organized Industrial Photographers of San Diego County group.

President is Robert Ries; secretary, Keith Adams; program chairman, Jack Stevens; and publicity chairman, Frank Tercey. All are Astro employees.

Final Call Is Issued For Mexico Tourists

Last call is out for all South-of-the-border tourists!

This Friday (July 31) is the last day to sign for the de luxe two-week tour of Old Mexico. General Dynamics people may call Jim Hardison of Convair, tour conductor, at his home phone, 276-5805, for details.

Tour dates are Aug. 21 to Sept. 6. Entire cost for transportation, luxury hotel accommodations, most meals, sightseeing is $360 each.

SECOND MEETING SET FOR COMMUNICATORS FROM GD DIVISIONS

Communications experts from General Dynamics divisions will gather next month at San Diego for their second Corporate Communications Meeting to review developments since the initial GD conference was held in New York City last fall.

R. E. Bennis, General Dynamics coordinator of wire communications, and C. M. Barlow, GD director of administrative services, will head the contingent of some 25 from at least ten divisions at the Aug. 11-14 meeting. J. H. Famme, Convair division president, will welcome the group at its opening session in Town and Country Hotel.

Delegates will report on communications operations, developments, and changes at their respective divisions. Panel discussions will deal with "Controlling Communications Costs," "Telephone Directories," and "Effective Switchboard Management."

L. M. Smith, Corporate executive assistant, will speak on "Communications, Computers and Costs," and R. I. Morse, West Coast communications coordinator, will discuss "Message Distribution and Acquisition Systems."

Divisions planning to send representatives are: Astronautics, Convair, Pomona, Fort Worth, General Atomic, Electric Boat, Stromberg-Carlson, Electronics at Rochester, Material Service, Canadair Limited, Washington Office, and Astro's Cape Kennedy operations.

ASQC Selects Huff For Booster Award

George Huff (Dept. 141-3) at GD/Astronautics has been named to receive the seasonal Booster Award Plaque presented by the San Diego Section, American Society for Quality Control.

Monthly presentations of the award are made for contributions, through recruitment, ticket sales and meeting attendance, with the individual with the greatest number of points earning the season award.

Huff logged 673 points (43 new member, 95 tickets sold and attendance at all 10 meetings). Astro's Walt Hackett (520 points) and Paul Gelles (368 points) were second and third.

Of 309 members in the San Diego Section, 182 are GD/Astro employees with 105 of those recruited during 1963-64.

Other Astro men who won monthly Booster Awards, besides those named, were Larry Jackman and Jack Sanders.

Astro Lens Meeting To Feature Photos

Astrolens are inviting members to put their "best slides and prints forward" Aug. 2 when they meet at 7:30 p.m. at the Photo Arts Building, Balboa Park.

Each member is being asked to bring two slides or prints for general critique, plus 20 to 25 others for a membership participation program. Subjects should be selected for their general interest to all.

Convair Mgt. Club To Hear Rosenbaum

"Topless" entertainment is in store for GD/Convair Management Club members at their Aug. 19 meeting, promise service parts men in charge of arrangements.

Featured speaker will be Mort Rosenbaum, Astronautics vice president, who will discuss "Manned Space Stations."

The dinner meeting will be in the Stardust Motor Hotel in Mission Valley with social hour beginning at 5:30 p.m. and dinner served at 6:30.

A wide variety of valuable prizes will be raffled off to boost the club's scholarship fund.

Tickets now are on sale at all regular outlets and by Management Club Boosters.

'Dolphin Club' Rates Sea World Discount

General Dynamics employees may now visit San Diego's Sea World, new theater of the sea on Mission Bay, at reduced prices by joining the "Dolphin Club."

Convair, Astro, and GD/E employee services outlets now have a quantity of membership application tickets on hand. They will be exchanged for membership cards when presented at the Sea World box office.

The Dolphin Club memberships allow a 50-cent reduction in regular admission price of $2.25, and 25-cent reduction in charge at the Murata Pearl Japanese Village within the park.

Sea World is open seven days a week from 10 a.m. until dusk. Among features are underwater acts by dolphins and Sea Maids; the Sea Grotto, where antics of fish are described through underwater sound systems; the Lagoon, nearly the size of a football field where whales and dolphins frolic; and the Japanese Village featuring girl pearl divers. Refreshments are available at the Hawaiian Punch Village and Snack Bar.

Rifleers Are Second In Jr. Tournament

First tournament to be staged by the San Diego County Junior Rifle League was held at the GD/Convair range, Gillespie Field, July 18.

Represented were Astro Junior Rifleers, Valley Gun Club, Pacific Beach Gun Club, Poway Musketeers, and Camp Pendleton.

The Astro team placed second in the Class "A" "high five" team event. Team members were John Tramposh, Terry Farrelly, Richard Ellis, Robert Eaton and David Farrelly Jr. Valley Gun Club placed first.

Tramposh finished fifth among individual shooters in Class "A," while Terry Farrelly took sixth.

Dominic Cognato of Astro placed second in the Class "B" individual ranks, with Paula Prentiss taking fifth and Kevin Schindler, sixth.

Coaching the Pacific Beach juniors was Astro's Ed Roseman, while Gus Grandums, also Astro, coached Poway.

Palmdale Alumni Gather at Astro For 'First Annual' Get-Together

More than 200 persons were on hand at ARA Recreation Area July 19 to take part in the first annual picnic and reunion of former employees of the GD/Convair flight test facility at Palmdale.

Those present voted unanimously to continue the event on an annual basis.

Taking part were present General Dynamics employees from Convair, Electronics, Pomona, Astronautics and Edwards RS. In addition, many former employees, from as far away as Lancaster and Palmdale, took part.

More than anything else the affair evolved into "bull sessions" for old friends brought together for the first time in years. Featured were movies taken by Astro's Jerry Schultz at previous Palmdale social and recreational events.

All previous managers of the Palmdale facility were on hand as were a majority of those who filled key jobs at that facility between 1955 and 1961.

The Palmdale facility, known as Air Force Plant 42, was operated during those years as a field operations and flight test site during the Convair F-102/F-106 programs. Peak population was well over 2,500 at the height of the F-102 era.

W. J. Martin, now Convair director of reliability, directed Palmdale operations as manager during most of the off-site facility's existence. W. H. Rumbaugh replaced Martin during the year of 1959-60 and F. J. Parker was acting manager during the last months of the facility. All three, with their wives, were at the reunion.

UAIDE SCHEDULES LOS ANGELES MEET

UAIDE (Users of Automatic Information Display Equipment) will hold its third annual meeting in Los Angeles, Aug. 12-14, with Frank V. Wagner, vice president of plans and programs for Informatics, Inc., as keynote speaker.

UAIDE is an organization of S-C 4020 Computer Recorder users. The S-C 4020, developed by GD/Electronics at San Diego, is a high-speed computer output system which records alphanumeric and graphic data on microfilm.

Of interest to all computer users, Wagner's address on "Displays—Key to Tomorrow's Applications," is set for the morning of Aug. 12, opening the three-day meeting.

H. E. Pietsch of GD/Astronautics is president of UAIDE and K. Leon Montgomery, also Astro, secretary.

Saturday Salvage Schedules Listed

Convair's salvage yard will be open this coming Saturday (Aug. 1) and Astronautics' yard at Kearny Mesa will have sales hours next week (Aug. 8).

SUNSET SPOTLIGHTS MISSION BAY PARK

Sunset magazine's July issue, currently on newstands, features a complete section devoted to San Diego's new Mission Bay Park.

This multi-million dollar development project, under way for some time, is aimed at providing San Diego and California with an outstanding aquatic and recreational facility.

ATA Trapshoot Draws 75 Fans

An enthusiastic crowd of some 75 shooters and spectators turned out for the registered ATA trapshoot July 12 in spite of the summer heat. CRA Gun Club sponsored the open shoot at its Gillespie Field Range.

Transistor radios went to all seven winners in 16-yd. competition: Class A — L. P. Johnson, Chula Vista, 98; Class B—George Anderson, Astronautics, 95; Class C—Charles Stinson, El Centro, 91; Class D—Bernard Davis of National City, 97; Class E—Joe Butera of Convair, 94; high lady, Ada Johnson, 88; high junior, Lee Galland, La Jolla, 69.

Davis, a newcomer to CRA-sponsored matches, won his event at only his third try in registered competition.

Lee Myer of Lemon Grove stood first in handicap event with a 93 to win a Kodak Instamatic camera. A transistor radio went to second-place Jack Mann, also Lemon Grove, who shot a 91. Dave Fraser of Poway was third with 90 and took home a portable fireplace grill. Ada Johnson, as high lady with 77, won another radio.

Bill Smith and Anderson tied at 83 for top doubles spot with Smith winning the transistor radio prize on toss of a coin.

Next registered event will be an ATA trapshoot on Aug. 9.

★ ★ ★

In another open event sponsored by the Convair club this month, 35 shooters vied for silver service prizes in an open registered skeet shoot July 19.

Lon Walton of Los Angeles and C. A. Smith of the CRA Gun Club tied for the championship in combined Class AA and A, both firing 50 out of 50. Walton won the shoot-off.

Class B was won by R. J. Dodge from Camp Pendleton with a score of 48 out of 50.

W. Olson of Rohr Aircraft took Class C with a score of 48. Don Cost of Convair topped Class D with 49.

Ernest Holland of Convair Gun Club won Class E after tying with Mrs. J. Reed with 46. Holland received the first-place prize on the basis of having the longest string.

C. W. Pharis of Convair was shoot manager.

SAWE CHAPTER TO VIEW COSMIC RAY PICTURES

Next meeting of the San Diego Chapter, Society of Aeronautical Weight Engineers, will be held at 7:30 p.m. Friday (July 31) in the Bronze Room, La Mesa. Featured will be the Pacific Telephone Company's film, "The Strange Case of the Cosmic Rays."

Sports & Recreation

'Slow-Pitch Sluggers'

Personnel, GD/E Ops Share 5-1 As Tie Ends First Half of Play

First half of CRA "slow-pitch" play was all tied up at the end of final games July 16 with Pre-War Personnel regaining its hold on a two-way tug of war with GD/E Operations. Both have won 5, lost 1.

GD/E Operations downed Pre-War boys on July 2 and then dropped the next week's tilt to Fire Dept., 9-0.

Pre-War Personnel won the chance to challenge GD/E Operations for first-round title when they pulled a hot one away from GD/E Material July 16, 5-3. Playoff will be held at the close of the regular schedule in September.

First scoring was in the last of the third inning when GD/E Material scored its three runs on three hits, climaxed by Norm Oliver's three-base hit. The Pre-War team came back in the fourth with a five-run outburst with five hits. The big blow was a three-run homer by John Evans. Evans also got two other hits.

Both teams played determined defensive ball throughout the battle. The GD/E Material team got four double plays, but the Pre-War gang out-hit them, 12 to 7.

The same night GD/E Operations won over Convair Material, 6 to 1, and Fire Dept. outlasted the Beasts, 11 to 10.

Results in July 9 games were Pre-War Personnel over the Beasts, 9-4; GD/E Material on top of Hi-Lows, 6 to 1.

First round of the second half was played last Thursday night. Tomorrow (July 30) Beasts meet GD/E Operations at Central Playground, 8 p.m. Fire Dept. plays Hi-Lows at 6:45 p.m., and GD/E Material vies with Convair Material at 8:20, both games at Linda Vista field. Pre-War Personnel draws a bye.

FIRST-HALF STANDINGS

Team	Won	Lost
Pre-War Personnel	5	1
GD/E Operations	5	1
GD/E Material	4	2
Fire Dept.	3	3
Beasts	2	4
Convair Material	1	5
Hi-Lows	1	5

Jo Ann Accorded Double Honors

Jo Ann Krantz of GD/E accepted a couple of significant honors from the GD Women's Golf Club July 11. On the same day she was installed as new president of the group she was handed the trophy of the year for winning the most matches.

Other new officers installed at the luncheon at Balboa Club were Joy Ward, also GD/E, vice president, and Ora Carpenter of Convair, secretary-treasurer.

Installation ceremonies climaxed the regular monthly tourney, held that day over Balboa course. Winners of golf equipment prizes were the five low scorers: Betty Jackson, Jerri Cooper, Ann Gagnan, Ora Carpenter, Betty Liddell, in that order.

Best player in each of the six foursomes won golf balls. Four new members took part in tournament play.

Next match is Aug. 8 at the new Mission Valley course, River Valley, located behind Rancho Presidio. All GD girls are welcome to join the ranks and may call Joy Ward on ext. 1975, Plant 1, for information.

Williamson Scores Dual Pistol Victory

Commissioner Joe Williamson topped both .22-cal. Police Course and Short National events in CRA Pistol Club matches July 12.

His 290 score in the Police Course master division bested Vern Mardis' 284. Williamson and Mardis kept the same one-two standings in the Short National with a 285 and 277, respectively.

Jim Mardis won the expert division with a 284 and Warren Walker was second with 279.

GD/E GOLF TOURNEY SET AT COTTONWOOD

GD/Electronics Men's Golf Club has scheduled its next links tourney for Saturday (Aug. 8) at Cottonwood Country Club, announced Ernie Paul, president. Tee-off time is 10 a.m.

GD/Wives Invited To Visit Sea World

GD/Electronics wives will tour Sea World and lunch in the marine park's Hawaiian Punch Village overlooking Mission Bay at their Aug. 13 gathering.

All GD/E wives and guests are urged to join the outing.

Lunch will be catered by Islandia Hotel and served sharply at 12 o'clock noon. Price, including admission to the park, is $3.75 each.

Reservations must be made by Aug. 10 by calling Mrs. R. G. Bond at 469-8777, or Mrs. G. W. Leesch, 582-1363.

The monthly get-togethers are open to all GD/E wives and their guests without invitation. Notices of meetings are sent those who request them.

Charger Football Tickets Available

Convair and GD/Electronics football fans may purchase tickets to San Diego Chargers' opening game of the season now at employee services.

Reserved seat price to the Aug. 8 game is $3.50. Location is in the upper deck, west side, throughout aisle 13 and 14 sections.

Chargers will meet the Denver Broncos in the pro-football opener.

Tickets may be obtained at GD/Electronics' Hancock St. plant from Juanita Jones, at GD/Electronics Plant 1 employee services, Bldg. 51, and at Convair employee services, Bldg. 32.

Employees Offered Starlight Discounts

Exchange tickets, worth 30 per cent discount to Starlight Opera productions, are still available to Convair and GD/Electronics people at Convair employee services.

Next musical show is "The Wizard of Oz," playing Aug. 6-9, 13-16.

GD/Convair Man Contributes to Book

C. R. Maikish, GD/Convair manufacturing development engineer, has authored a chapter for the forthcoming book, "Machining of High-Strength, Thermal-Resistant Materials," to be published by the American Society of Tool and Manufacturing Engineers.

Maikish' material, titled "Cutting Fluids," deals with functions and types of cutting fluids—any agent, gaseous or liquid, that "exists in the environment at or near the point of contact between the cutting tool and the workpiece, and which functions in any way to expedite the cutting process."

PICNIC SPOT — GD families are thronging to CRA's well-equipped and attractive picnic grounds, Pecan Park, east of El Cajon for summertime gatherings. Above photo shows aerial of site with shady grove of large pecans protecting picnic tables, barbecues. In foreground is large area for baseball, basketball, volleyball, badminton, shuffleboard, etc. Supplemental parking lot is at far left foreground; children's playground at right near trees.

Los Angeles Outing Depends on Interest

A show of hands is asked of all Convair and GD/E ball fans who would like to take the family to Los Angeles Aug. 23 to watch the Dodgers play Cincinnati.

CRA will arrange the family outing by chartered bus if at least 40 people sign. So far, over a dozen have urged the trip, said Pete Beyrer who is making arrangements.

All-inclusive price for bus fare and game admission is $5.25 a person.

The bus will leave the Bldg. 19 parking lot at 9:30 a.m. and return by 6:30 p.m. Rest stops will be made going and coming at San Clemente.

Names should be called into Convair employee services, ext. 1245, Plant 1, immediately, said Beyrer.

Bowling League Organization Is Under Way

Bowling leagues for the CRA winter season now are being organized for Convair and GD/Electronics keglers.

Co-commissioners Jim Hayman and Mike Brooks urge all bowlers to sign at once so that alleys may be reserved for the coming season. League play starts immediately after Labor Day.

The following leagues, bowling alleys, nights are open for registration:

Tuesday — University Lanes, 700 Mixed Handicap.

Wednesday — Pacific Recreation, Mixed Handicap Foursome.

Thursday — Victory Lanes, Mixed Handicap Foursome; Frontier Lanes, Mixed Fivesome, and GD/E League; Pacific Recreation, Mixed League.

Friday — Pacific Recreation, Men's 510 Scratch Trio, Women's Handicap Doubles.

All of the above listed leagues start bowling at 6:30 p.m.

There are still some openings in the 900-910 Classic League which will bowl Wednesday at 9:30 p.m. at La Mesa Bowl.

All interested in entering may leave their names with CRA office, ext. 1245, Plant 1, or call either Brooks or Hayman. Brooks may be reached at Plant 19, ext. 410; home phone, 469-8793. Hayman's home phone is 466-1262.

August Golf Tourney Sign-Ups Will Start

Convair linksmen may start signing tomorrow for the August tourney over Coronado course.

Commissioner Ken Wulfemeyer said starting times will be given from July 30 to Aug. 6 on ext. 1705, Plant 1.

Next month's match will be one day only, on Saturday, Aug. 15.

Pecan Park's Family Picnic Area Offers 'Something For Everyone'

There is something for everyone at CRA's family picnic area, Pecan Park, east of El Cajon, which has become a more and more popular gathering place for General Dynamics families.

Summer weekends find it full of fathers, mothers, and all the kids as everyone seeks the outdoors. All GD people in San Diego are welcome to enjoy the park without charge, reminds J. K. Field, Convair manager of personnel service.

There's room enough for a thousand people to picnic and play without feeling crowded. Although many groups are scheduling get-togethers on the weekends, the park is always open to individual families.

Field suggests the late afternoon and evening hours as the most pleasant time of the day in the pecan grove during the hot weather months. However, Pecan Park is open all day, except Mondays, from early morning until 9 p.m.

Facilities include two softball diamonds, basketball backstops, volleyball, shuffleboard, and badminton courts, and a game area for sack races, etc.

Children have a variety of playground equipment to entertain them.

Twenty barbecue grills and plenty of picnic tables and benches are spotted among the trees. Charcoal is available at the park.

Road Runners Head For Guatay Gardens Over Coming Weekend

CRA Road Runners, at least all not on other vacation trips, will take a short jaunt to Guatay Gardens over the weekend of Aug. 7-9.

The Convair trailerites chose the campsite on Hwy. 80, east of Alpine, as the coolest spot near to home after running into hot summer weather on their July trip to O'Neill Park.

Six units transported 19 members and 7 guests to the park over the weekend of July 10-12. Guests were Mr. and Mrs. Jack Riley and children of Anaheim, visiting Harry and Fran Rush. All 26 joined in the usual Saturday potluck.

Scholarship Winner Is Honor Graduate From Occidental

James L. Matteson, Convair son who held one of the division's scholarships awarded in 1960, graduated this year magna cum laude from Occidental College. His overall grade point average through his four college years was 3.60.

He majored in both physics and mathematics at Occidental and plans to go on with graduate work in physics, heading toward a doctor's degree, at the San Diego campus of the University of California.

James is the son of Harry Clair Matteson, a Convair aerodynamics engineer at the time the scholarships were awarded.

CRA Calendar

(Convair Recreation Association has some 30 activities in operation for Convair and Electronics people. For information call CRA Headquarters, ext. 1245.)

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AEROMODELERS — Flying sessions Saturday and Sunday mornings, 8 a.m. to 1 p.m., Clairemont Flying Site.

BOWLING—Winter leagues organizing. Call CRA office, ext. 1245, Plant 1; Mike Brooks, 469-8793; or Jim Hayman, 466-1262.

CAMERA CLUB—Joint CRA-ARA meeting Aug. 2, 7:30 p.m., Photo Arts Bldg. Slide and print show.

FENCING—Workouts and instruction each Friday night, 7-10 p.m., YWCA, 10th & C Sts.

GARDEN CLUB—Joint CRA-ARA meeting Aug. 5, 7:30 p.m., Floral Assoc. Bldg., Balboa Park.

GOLF—Entries open tomorrow (July 30) to Aug. 6 for next CRA tourney Aug. 15 at Coronado course. Call ext. 1705, Plant 1.

GUN CLUB—CRA club shoot Sunday (Aug. 2). Registered ATA open shoot Aug. 9, Gillespie Field Range.

ICE SKATING—Thursday ice skating sessions for GD people, Mission Valley Ice Plaza, 6:30-8 p.m.

MEXICAN TOUR—Deadline for sign-up July 31. Call Jim Hardison, home phone 276-5805.

MODEL RAILROAD — Work nights, Fridays, 7:30 p.m., open sessions, Sundays, 1-4:30 p.m., House of Charm, Balboa Park.

MOVIES — Reduced prices for General Dynamics people at State Theater, Euclid and El Cajon Blvd. General admission: adults, $1; children, 35c.

PISTOL CLUB — Next club shoot Aug. 9, 9:15 a.m., San Diego Police Pistol Range, Federal Blvd. and Home Ave.

RADIO CLUB—Next meeting Aug. 6, 8 p.m., Harbor Drive headquarters.

RIDING CLUB—Regular meeting Aug. 6, 7:30 p.m., Gillespie Field Clubhouse.

ROAD RUNNERS — Weekend outing to Guatay Gardens, Aug. 7-9.

SOFTBALL — "Slow pitch" league games Thursday evenings, Central and Linda Vista playgrounds.

SPORTS CAR CLUB—Breakfast rally to Pine Crest Aug. 2.

WATER SKI CLUB — Skiing weekends on Mission Bay. Call Gene Sevigny, ext. 1778, Plant 1.

GD HONORED — Award to General Dynamics for contributions in supersonic aircraft field is accepted by Convair President J. H. Famme (left). Dr. C. B. Millikan presents Aerospace Electrical Society plaque.

AES Cites Dynamics Supersonic Aircraft

General Dynamics Corporation has been honored for its "management and technical contributions in the supersonic era" by the Aerospace Electrical Society at its 22nd annual meeting in Los Angeles, Calif.

J. H. Famme, president of Convair division, accepted the award for the Corporation July 14 from Dr. Clark B. Millikan, director of graduate aeronautical laboratories, California Institute of Technology.

The plaque read: "For significant advancement of supersonic aircraft technology, encompassing engineering design, materials applications and manufacturing techniques, as embodied in the F-102 and F-106 jet interceptors, the B-58 bomber and the F-111 variable-sweep tactical fighter."

Centaur Insulation Jettison Subject of Intensive Tests

Perfect performance by jettisonable insulation panels and nose fairing was among major test objectives achieved in the June 30 flight of Atlas-Centaur Three (AC-3).

Behind this particular success, and certainly a major part of it, was an unusual test and development effort carried out at GD/Astronautics' Pt. Loma Test Site.

It began modestly last December with three tests planned. It grew into seven major and 10 supplemental tests, concluding just days before the AC-3 launch. More than 100 persons were involved, working three shifts and seven days a week at the peak of the program. Contributions were traced to NASA, GD/Fort Worth and many elements within Astronautics.

Many important revisions were attributed to the program.

Testing centered on Pt. Loma facilities known as "J," "K" and "L" Towers.

Both insulation panel and nose fairing separation tests were carried out on "L" Tower. It features a test facility surrounded by a huge suspended net. In tests the units shot upward (simulating Centaur ascent) as separation was achieved, and parts fell back into the net. Thus, test items were available for still more testing.

In nose fairing tests a simulated payload was utilized. Insulation panels were mounted on a whalebone-type fixture simulating a Centaur tank.

Both "J" and "K" Towers are fixed-type facilities containing actual Centaur tank sections. In the former, pincer-like holders (much like old-fashioned screen-door stops) were designed and utilized to arrest separating insulation panels.

Liquid hydrogen was pumped into the tanks during tests. Liquid nitrogen replaced liquid oxygen (Centaur oxidizer) to minimize explosive dangers, since both shaped charges and explosive bolts were being used.

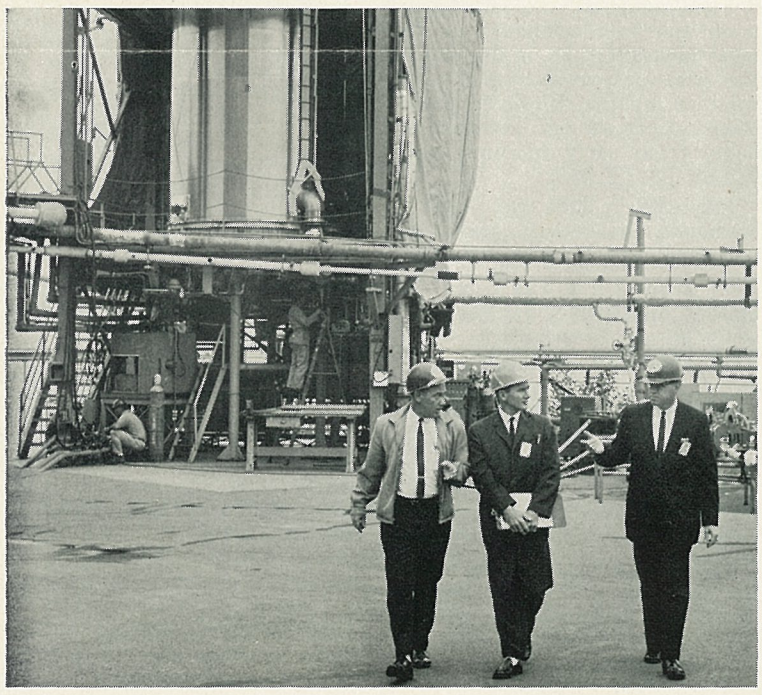
Among notable improvements resulting from the test program was an increased purge rate in which helium is pumped between Centaur walls and the panels to prevent the formation of frozen water and atmospheric gases. There were also provisions developed for continuing the purge into early minutes of the flight, instead of during pre-launch phases only.

Other improvements included altered panel shapes and fittings and modification of panel seals.

Overall testing direction for the program was under Mel Clayton, Centaur assistant project engineer, with an able assist from Lyle Minkler, NASA resident engineer at Pt. Loma. Gary Maxson and Lon Jordon were test directors. D. R. Brinks, Al Landry and C. W. Graser, all Dept. 756, guided key support functions.

"So many different departments and functions were involved it would be difficult to name them all," Clayton said. "However, the ultimate flight success of these units is a fitting tribute to the really outstanding job turned in by all concerned."

Clayton pointed out that while GD/Fort Worth personnel were not required to be on hand continuously in actual testing, their assistance in making changes, in offering advice and suggestions, was a key factor.



FINAL TESTING — Shown with Tower "J" at Point Loma Test Site where final testing on Centaur panel jettisoning was accomplished are three who played key roles in program. From left are D. R. Brinks, Dept. 756, Lyle Minkler, NASA, and Mel Clayton, Centaur, who directed test effort.

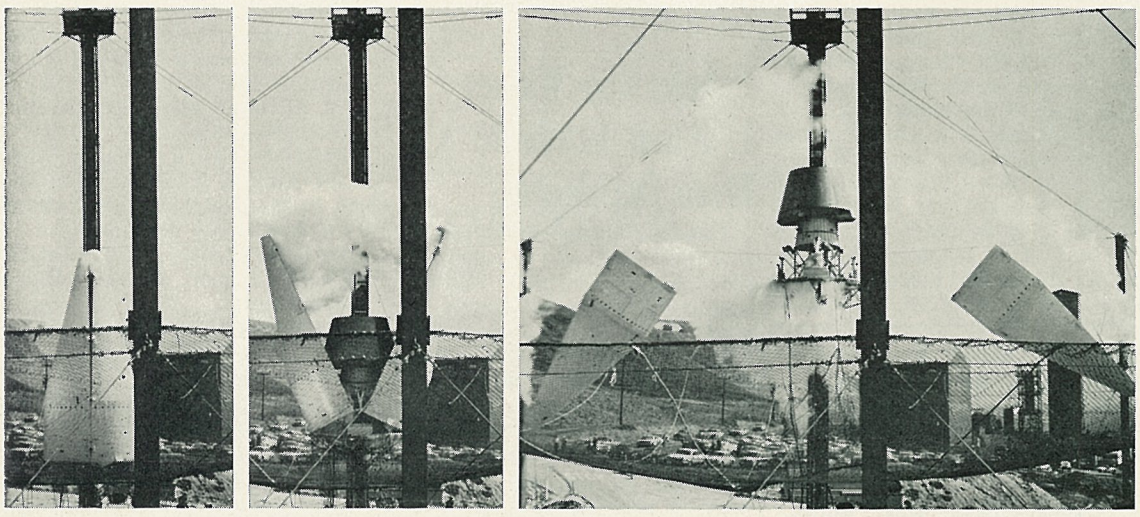
Canadian Firm Wins GD/Pomona Award

GD/Pomona has announced award of a $267,709 contract for Terrier guided missile booster fin assemblies to Heroux Machine Parts Ltd., of Longueuil, Quebec, Canada.

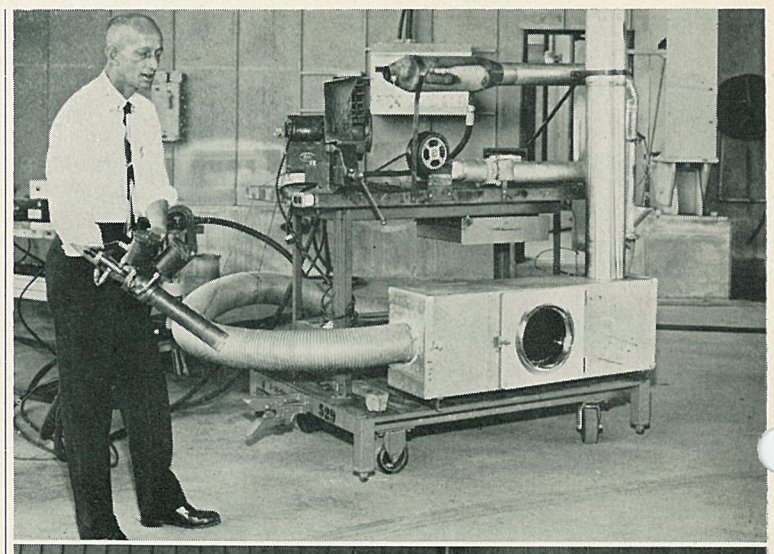
This award, in continuation of support to the mutual defense production sharing agreement between the governments of Canada and the United States that provides subcontract opportunities to Canadian firms, brings to $531,886 the total of contracts awarded to Heroux in three years.

Previous contracts were for Terrier hydraulic sump assemblies and booster fins, according to R. D. Webster, GD/Pomona director of material and purchasing.

In order to provide a more complete service, Heroux has taken over operation of Haley Industries Ltd., of Haley, Ontario, Canada, one of the best equipped magnesium and aluminum casting manufacturers in Canada.



SWISH . . . BOOM — Photo sequence shows Centaur nose fairing undergoing separation tests at GD/Astro's Point Loma Test Site. Test unit shoots upward, simulating Centaur ascent, as explosive bolts separate fairing halves and small nitrogen bottles propel halves away from simulated Centaur payload in center. Made of fiber glass honeycomb at GD/Fort Worth, nose fairings protect delicate payload and flight control equipment from aerodynamic forces, are jettisoned to reduce weight 205 seconds after launch.



TALENT POOL — Representatives of four GD divisions and Corporate Office recently attended coal-mine fire-fighting conference at GD/Fort Worth. At top, Herman Childree, GD/Pomona-Daingerfield, demonstrates his high-volume burner used to blow inert gas on coal fire. In lower photo, Phil Cummins makes point to front row observers, from left, Chuck Dawson, GD/FW; C. D. Arnot, GD Corporate Office; Harry Williamson, Freeman Coal Mining Corp., Material Service; D. H. Weinblatt, Liquid Carbonic; Paul Budzak, Freeman Coal.

Dynamics Divisions Team On Mine Fires Problem

Resources of four General Dynamics divisions are being used in a search for new coal-mine fire-fighting techniques.

Representatives of GD/Fort Worth, Freeman Coal Mining Corp. of Material Service Division, GD/Pomona-Daingerfield, Liquid Carbonic, and Corporate Office attended a two-day conference on the subject recently at GD/Fort Worth.

"Because of our advanced work in airplane fire-fighting we were asked to launch this effort," said Phil Cummins, GD/FW security project coordinator.

At the meeting, an array of simplified, high-volume burners was used to blow inert gas on a scaled-model fire.

"The demonstration proved that this system has definite possibilities," Cummins said. "Our next step is to make and test a full-scale burner in test cells at Daingerfield."

Cummins explained that such a burner possibly could be used to force larger volumes of inert gas on coal-mine fires than is now possible using existing equipment.

(Ironically, air must be constantly circulated through a coal mine to prevent a build-up of methane gas, which can cause explosion. A fire, of course, feeds on oxygen from this air. Large volumes of inert gas, blown into the mine over a period of time, could extinguish the fire and at the same time displace explosive gases. This would in many cases preclude costly shutdown of mines.)

Participating in the conference were Harry Williamson, general superintendent, and Paul Budzak, safety director, Freeman Coal Mining Corp.; Donald H. Weinblatt, project engineer, Liquid Carbonic; Clinton D. Arnot, director of plant engineering, Corporate Office; and Herman Childree.

Mobility

Transfers Among Dynamics Divs.

(Following are recent personnel transfers among General Dynamics divisions. In parentheses are dates when individuals joined the company.)

Raymond J. Cary Jr. (1960) from GD/Electronics-San Diego to GD/Pomona engineering; **Herbert V. Abrams** (1959) from GD/Convair to GD/Fort Worth airframe design; **Ralph E. MacDonald** (1963) from GD/Astro to general purchasing, Fort Worth; **Robert E. Flanagan** (1960) from Astro (Cape Kennedy) to industrial relations supervisor, Electric Boat (Quincy); **Kenneth L. Beck** (1953) from Convair to Fort Worth airframe design.

William H. McGann Jr. (1956) from Convair to Pomona purchasing; **Paul B. Lyons** (1951) from Convair to Fort Worth systems manuals; **Robert E. Poling** (1950) from Astro to Fort Worth manufacturing control; **Robert Herlihy** (1959) from Astro to Pomona purchasing; **Alvin H. McInnis** (1950) from Convair to Fort Worth airframe design; **Roger C. Pyle** (1962) from Astro to data processing programmer, Electronics-San Diego; **Billy C. Poole** (1949) from Astro (Salina) to manufacturing control, Fort Worth.

Robert B. Penneman (1952) from Convair to Fort Worth structural design; **James J. Morgan** (1958) from Astro to missile flight test, Pomona; **Elfred L. Dierker** (1950) from Astro (Spokane) to Fort Worth subcontract management; **Henry M. Salisbury Jr.** (1951) from Astro to senior test engineer, Pomona; **Roy P. Poston** (1955) from Convair to Fort Worth airframe design; **William H. Thomas** (1948) from Astro (Salina) to Fort Worth tool control; **Elmer E. Sowers** (1940) from Convair to Fort Worth airframe design; **Donald D. Loos** (1956) from Convair to Redeye program management, Pomona.

TRANSDUCER STUDY SET FOR GD/ELECTRONICS

GD/Electronics has been asked to carry on studies on a hydroacoustic transducer array as a part of the division's undersea acoustic research. The contract was awarded on behalf of the U. S. Navy Underwater Sound Laboratory, New London, Conn.

GD

SAN DIEGO EDITION
(Serving GD/CONVAIR
and GD/ELECTRONICS)

GENERAL DYNAMICS NEWS

Vol. 17, No. 17 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, August 12, 1964

Annual Con-Trib Drive to Start

GD/Convair and GD/Electronics Con-Trib-Clubs open their annual membership drives simultaneously next week, on Aug. 17, with dual goals—to bring all employees not now contributing, into the "sharing" program, and to encourage all present members to increase their donations.

Drive dates have been advanced to August this year so that definite pledges may be tabulated before the fall United Community Services campaign. Division drives normally are held in November.

"This year, too, the need is greater," stresses Convair President J. H. Famme as he urges everyone to give to the utmost of his ability.

"This is our opportunity to discharge our obligations to the community in which we live and work," Famme said. "By our gifts to Con-Trib-Club, we are aiding thousands less fortunate. And, in joining Con-Trib-Club, we give only once for all."

Tab cards went to all department heads today (Aug. 12). Supervisors will contact each employee and ask him to indicate whether or not he is now, or wishes to become, a Con-Trib-Club member, and how much he wants deducted from his pay check for his contribution.

Present members are asked to review their donations in light of the new scale printed on the reverse of each card. The scale of giving has been revised to bring it more in line with the increased "yardstick" of United Community Services. The UCS is more than ever in need of adequate funds to support its some 75 San Diego charities and philanthropic organizations for the area's boys and girls, crippled, ill, and needy.

Besides the yearly pledges to UCS, both Convair and GD/Electronics Con-Trib-Clubs contribute regularly to dozens of other worthy organizations.

And, 10 per cent of all Con-Trib receipts are channeled into Emergency Aid Funds for the assistance of Convair and GD/E people faced with emergencies through no fault of their own.

The drive will end Aug. 21. Cards must be returned to employee services by the following Tuesday, Aug. 25.

Both Convair and GD/Electronics are aiming toward 100 per cent participation, emphasized J. K. Field, Convair manager of personnel services, and J. W. Swank, GD/E manager of industrial relations. Field and Swank head the Con-Trib drives in their respective divisions.

Members of the Convair Con-Trib Committee, who initiated the division campaign by action at the July 21 meeting are: Field, chairman; H. C. French and Richard Fitzgerald, IAM representatives; E. E. Larsen, IBEW; W. A. Ebel and D. D. Strange, EAA; Jack Benedict, management; Ralph Montgomery, Management Club. Molly Dowell is secretary pro tem.

GD/Electronics Con-Trib Committee members are: Swank, chairman; James Wheeler, IAM; Ray Trent, EAA; D. C. Newlon, supervision; William Lynt, Hancock St. facility; C. E. Murdock, Management Club.

Ken Wulfemeyer of Convair employee services and George Oatman, GD/E employee services, will coordinate the campaigns within the two divisions.

At the end of last year's campaign, GD/Electronics had boosted its percentage to 91 per cent of population and Convair had 89 per cent participation.

Resources Economics Reports Half of Year's Savings Goal Met

Savings to Convair through cost reduction projects monitored by Resources Economics have reached $300,000 in the first six months—well over the half-way mark of the year's goal.

If the savings pace is maintained and all current programs implemented, there is no doubt that the division will reach and pass its target of $500,000 set for 1964. In fact, predicts R. H. Williams, Resources Economics coordinator, final total of savings could be as high as $600,000.

Consolidation of areas, reduced operating and maintenance expense, change in power rates, reengineering of telephone equipment, and improvements in operations are responsible for the sizable reduction of division overhead expense.

At least $39,000 will be saved this year with installation of a new wind tunnel test section which will make possible continuous wind tunnel operations. Further improvements in wind tunnel operations going into effect this year will see an estimated $48,000 a year saved on electrical power cost.

A neat $20,000 a year has been reclaimed for the division by cancellation of a special electric power contract and change to industrial rate for all electricity used at the ramp test site.

Realignment of switching equipment for Plant 1 and Rose Canyon has resulted in saving $7,000 a month on cost of master telephone equipment.

Dial wire service is maintaining its projected savings which should reach $15,000 a year by

(Continued on Page 2)

Lombardo to Talk To Management Club

John L. Lombardo plans to give a significant talk on subjects pertinent to the GD/Electronics Management Club at its Aug. 27 meeting.

Tickets now are on sale by departmental representatives to the dinner session to be held at Catamaran Hotel, Mission Blvd. Social hour is at 5:30 and dinner at 6:30 p.m.

TWO ADDITIONAL JOE II's ORDERED

Two additional Little Joe II launch vehicles for the Apollo test program have been ordered from General Dynamics/Convair by National Aeronautics and Space Administration.

The contract amendment, in the amount of $1,352,000, increases the number of Little Joe II vehicles ordered from six to eight, and brings the total procurement cost to over $13 million. This includes design and fabrication of two launchers.

The two newly-ordered vehicles will contain attitude control systems and instrumentation to analyze the control system.

Two Little Joe II flights have been conducted by NASA Manned Spacecraft Center from White Sands Missile Range, N. M. A booster with a dummy Apollo payload was launched successfully on a ballistic flight a year ago, Aug. 28, 1963. On May 13, 1964, a Little Joe II successfully boosted an engineering model of the Apollo spacecraft on the first in-flight test of the launch escape system.

First test with an attitude-controlled Little Joe II is scheduled later this year.

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COSTS REDUCED ON LITTLE JOE

A vast amount of qualification information on components purchased from outside sources has played an important, but almost unheralded, part in reducing expenses on the low-cost Little Joe II launch vehicle program.

GD/Convair, builder of Little Joe II, in searching out every possible way to trim costs, subscribed to IDEP (Interservice Data Exchange Program) which came into being about the same time that Little Joe II was on the drawing boards.

Since then, the division has saved thousands of dollars by being able to eliminate part of environmental testing on components and systems purchased from vendors.

Before the program for the exchange of test data on manufactured items was established every company was obliged to run a wide range of qualification tests on every purchased item to be certain it would meet all environmental requirements. This often meant that many items were qualified several times over, as different companies duplicated similar tests.

"In fact, such testing on just one small part such as a servo valve for Little Joe II would take three months," said J. B. Hurt, Little Joe II program manager.

By using already-available test information, supplied all IDEP members, Convair has saved several thousands of dollars on the testing of the some 1,200 purchased parts designed into Little Joe II.

No testing at all was necessary for over half of the vehicle-borne

(Continued on Page 2)

Convair Treads 'The Road Back'

A brighter picture for the future of General Dynamics/Convair was painted by Division President J. H. Famme last month as he outlined the solid status of the San Diego facility and voiced optimism for new business in the months to come.

"Convair is over the hump and starting the long pull back to recovery," Famme and members of his staff assured supervision at a July briefing.

Every production program is now in the black. All military and commercial programs—C-141 empennage, Little Joe II launch vehicle, insulation units for Minuteman guidance housings, spare parts for Air Force and commercial aircraft—are paying their way.

New programs in-house, telemetering oceanography buoys (which will be put to the first test within weeks), the TEL-4 program to integrate advanced telemetry instrumentation equipment at the Air Force Eastern Test Range's tracking station, hydrofoil stabilizing investigations, are advancing Convair's capabilities into new and profitable fields of endeavor.

New business prospects involve a wide range of proposals now on the drawing boards and in wind tunnel tests. These include such advanced products for military, space, and commercial application as a high performance reconnaissance and attack aircraft, vertical take-off and landing plane, ground effect take-off and landing vehicle, a close support transport. And, negotiations are progressing with Convair-Liner operators to convert the famous transports to turboprop power.

Supervision was commended for all-out efforts in reducing overhead expense in every area to allow a swing to the credit side of the ledger.

Rounding out the division's progress report were C. W. Frick, vice president-engineering; C. L. Meador, vice president of sales and contracts; D. C. Wilkens Jr., director of industrial relations; W. R. Bruce, director of operations.

FREEWAY CLOSES ALL CONVAIR LOTS

All Convair parking lots along Pacific Highway, north of Sassafras St., were closed permanently last week because of the freeway construction through the area.

Overpass 2, by the employment building, also has been closed to foot traffic. Pedestrians must cross Pacific Hwy. at the Sassafras intersection or by Overpass 1.

Two large parking lots have been provided by the city between India St. and Kettner Blvd. for convenience of all Convair and GD/Electronics drivers. There is no charge.

The lot between Vine and Thorn Sts. has been open since June. A second lot, bounded on the north by Sassafras and extending south of Redwood St., was opened last week. Entrance to the new parking lot is from Spruce St. on the east or Sassafras on the north.

The Bldg. 19 lot and the annex lot south of the main Convair cafeteria are for reserved parking only.

Cash Value Insurance Plan Goes Into Effect

General Dynamics has put into effect the supplemental group cash value life insurance plan for all supervisory and non-represented flat-salaried personnel who wish it, as a further expansion of the Corporation's improved insurance program.

All who signed for the additional life insurance are now covered.

Those who did not sign, may do so before Sept. 1 without a physical examination.

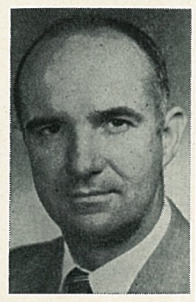
The optional life insurance plan is offered to augment present group life insurance and to provide permanent paid-up protection at retirement or termination.

Insurance is available in units of $5,000 up to a maximum of $30,000, dependent upon the individual's salary bracket. Employees must sign for the whole amount to which they are entitled. Premiums are based on amount of insurance and age of subscriber.

Eligible people may sign for the supplemental insurance at employee services during the remainder of this month.

Jack Bowers Named To Heinemann Staff

J. L. (Jack) Bowers, a former assistant chief engineer at Astronautics, has rejoined General Dynamics Corporation as a member of the staff of E. H. Heinemann, Corporate vice president-program planning, with responsibility for electronic systems.



Jack Bowers

Bowers originally joined the company at Convair in 1946 as a research engineer, developing search radar, magnetic guidance and missile guidance projects. Subsequently he was assigned to the Terrier project at Pomona Division as chief systems development engineer.

A graduate of Carnegie Institute of Technology, 1942, he was with Westinghouse Research Laboratories shortly before World War II and then with the Air Force from 1943 to 1946. He supervised electronic programs at Wright Field Special Projects Laboratory, Dayton, among them jamming transmitters and radio and radar controls for guided missiles. He has done graduate work at New York University and University of California, Los Angeles.

Named to the former Convair Corporate engineering staff in 1955, Bowers transferred to Astronautics the following year as assistant chief engineer for de-

(Continued on Page 3)

REWARDED — Norma Buell, Dept. 3-5, secretary to Dr. G. M. Clarke, Convair chief physician, left, received service emblem and congratulations from D. C. Wilkens, director of industrial relations, on 25th anniversary.

Resources Economics Reports Half of Year's Savings Goal Met

(Continued from Page 1)

reducing long distance toll calls. At least 2,000 messages are transmitted by wire each month, said Williams. Consequently, long distance charges have been cut by at least $1,000 a month.

Additional proposals in the communications area now are being prepared.

Such continuing programs as improvement of operating procedures, reduction of paperwork and simplification of forms, and streamlining of data processing equipment will account for considerable savings in actual money outlay before the end of the year.

Resources Economics control center is anxious to receive cost savings suggestions from anyone in the division. All with ideas for cost reduction, no matter how large or small, are urged to contact Williams at ext. 525, Plant 1.

★ ★ ★

Three-Quarter Mark Achieved in Convair ES/CIP Programs

Employee Suggestions and Cost Improvement Proposals approved and installed up to June 26 at GD/Convair achieved 75 per cent of the year's dollar savings set for the programs. In fact, four departments had reached their target amounts and of these, two had multiplied their savings by several times the fixed goals.

According to a report from Vern Sharp, chief of plant engineering who is responsible for the ES/CIP programs, total savings credited since Jan. 1 were $481,522 — three-fourths of the overall granad total for the year, $639,000.

Dept. 129 was in number one spot for production departments in exceeding its goal. It was responsible for savings of $14,348, seven times its target of $2,000. Dept. 101 had the greatest amount of dollar savings—$68,-356, and had exceeded its target of $60,000.

Purchasing (Dept. 34) held both the dollar savings record and target position among indirect departments. Its $245,137 savings were nearly six times the goal of $42,500. Dept. 15 had reached the 100 per cent mark with $25,027.

When telephoning, never mind the weather. Get to the point. Telephone time costs money.

Log Book Entries

Service Emblems

CONVAIR

Service emblems due during the period Aug. 1 through Aug. 15.

Twenty-five-year: Dept. 3-5, Norma C. Buell; Dept. 141, W. J. Gibson; Dept. 171, C. P. McVay; Dept. 400-1, F. D. Slavens; Dept. 401-2, H. S. Jensen.

Twenty-year: Dept. 6-0, W. W. Fox; Dept. 48-31, F. P. Hernandez Jr.; Dept. 97-2, J. E. Miller.

Fifteen-year: Dept. 48-32, Juan Meza; Dept. 131, G. K. Phares.

Ten-year: Dept. 7-1, V. J. Park Jr.; Dept. 15-0, J. T. Merritt Jr.; Dept. 92-0, D. G. Spencer.

ELECTRONICS

Twenty-year: Dept. 70-00, Mildred P. Elie.

Fifteen-year: Dept. 33-00, Muriel A. Lawson.

Awards

CONVAIR

Employee Suggestion Awards approved for periods ending July 24 and 31.

Dept. 25, A. E. Ward, $31.38.

Dept. 27, J. V. Seward Jr., $10.

Dept. 101, Leo Budzynski, $79.61 (partial payment); W. J. Gramse, $53.58.

Dept. 102, J. Butera and R. Gamboa, $72 each, joint award (partial payment).

Dept. 128, V. L. McKerrihan, $10.

Dept. 129, M. D. Thomas, $10; D. R. Wilson, $10.

Dept. 141, M. M. Doerr and H. G. Rexroad, $23.25 each, joint award.

Dept. 400, S. W. Kellogg, $10.

Cost Improvement Proposals approved for the same periods.

Dept. 101, H. A. Mohr and H. M. Woodard (Dept. 115), joint proposal.

Dept. 119, L. W. Stamper, two proposals.

Dept. 401, V. P. Mavrinac.

Retirements

CONVAIR

CARNS—Mae T., Dept. 44-3. Seniority date Oct. 11, 1950, retired June 30.

CORDELL—Criss C., Dept. 25-5. Seniority date April 25, 1951, retirement effective April 28.

LEONARD—Fred, Dept. 400-1. Seniority date June 26, 1941, retirement effective June 28.

MUMME—Alvin R., Dept. 171. Seniority date Jan. 2, 1948, retirement effective May 28.

OWENS—John E., Dept. 171. Seniority date Jan. 15, 1951, retirement effective June 14.

WELLER—Sarah E., Dept. 14-1. Seniority date March 21, 1951, retirement effective May 27.

Deaths

CONVAIR

HURD—Robert, Dept. 6. Died July 26. Survived by wife, Cleo, and one brother.

General Dynamics NEWS

Published by General Dynamics Corporation, One Rockefeller Plaza, New York, N. Y. 10020; with editorial headquarters at 3302 Pacific Highway, San Diego, Calif. 92112, P.O. Box 1950, telephone 296-6611, ext. 1071. Logan Jenkins, editor-in-chief.

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Affiliated editions of General Dynamics NEWS are published in Rochester, N. Y., covering GD/Electronics and Stromberg-Carlson, editorial offices, 100 Carlson Road, HUbbard 2-2200, ext. 2555. Fred E. Voss, editor; and at Groton, Conn., covering GD/Electric Boat, editorial offices at Groton, HIlltop 5-4321, ext. 300 and 513, Joseph Tracey, editor.

Convair Trio Off to Japan

Three Convair men left for Tokyo, Japan, last week to participate in certification of Japan Air Lines' Convair 880-M jetliner with the tail de-icing systems deactivated.

Pilot John Knebel; Al Cappelen, flight test engineer; and Lyle McClain, instrumentation engineer, will join Federal Aviation Agency officials and JAL crew members in the two-week program.

Similar certification was accomplished on Trans World Airlines' 880 late last year when simulated ice was installed on the horizontal and vertical stabilizer leading edges and tips of the horizontal stabilizers to prove that the plane would react normally without use of tail anti-icing systems. **(GD/NEWS, Dec. 11, 1963.)**

Knebel took part in the TWA program, as did Dean Melton, FAA pilot, who will be on the JAL checkout. L. M. Starbuck, FAA flight test engineer, is assigned to the task. JAL is providing a pilot and a flight engineer.

Aboard to observe during certification flights will be members of the Japanese Civil Aeronautics Board and JAL engineers.

COSTS REDUCED ON LITTLE JOE

(Continued from Page 1)

parts, and most required only partial environmental tests, instead of the entire range—pressure, temperature, acceleration, vibration, acoustics, shock, humidity, salt spray.

IDEP is an organization funded by the Air Force, Army, and Navy and comprised of companies working on government programs. Each company submits results of all tests run on parts or systems purchased from outside manufacturers. Thus, a "bank" of test data is built up at a centrally-located file maintained by Aerospace Corporation in Los Angeles. Complete data is disseminated continuously to the 130 locations of participating members.

Data is transferred to microfilm and sent to member companies together with cumulative listings of part identifications, vendors, vendor part numbers, test dates.

Convair's extensive file of IDEP information is used constantly by design engineers to determine qualified parts for use not only in the Little Joe II program but on all in-house proposals for new military business. Reliability engineers work closely with design engineers for best selection.

W. L. Johnston, reliability specialist in Little Joe II engineering, acts as IDEP data coordinator for Convair.

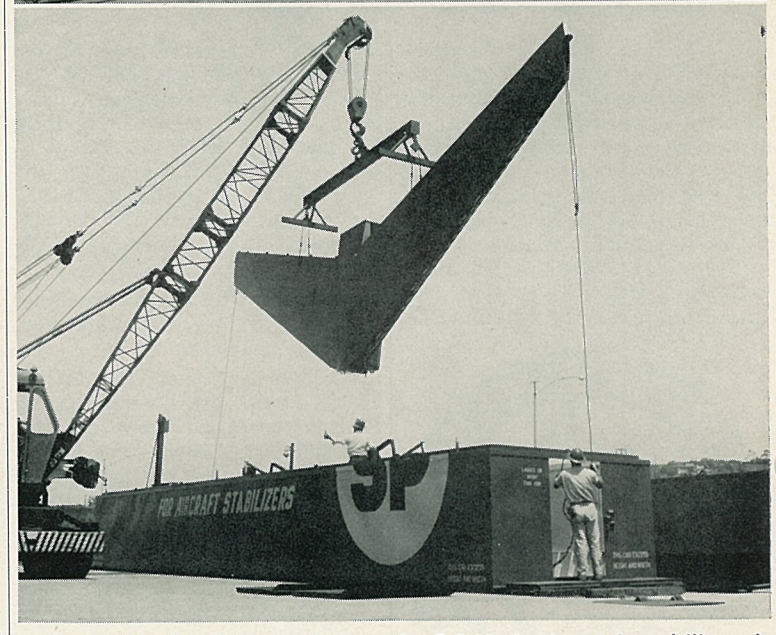
Ducks Unlimited Chooses Johnson

Payne Johnson, manager of communication for GD/Electronics, has accepted chairmanship of the 1964 San Diego Ducks Unlimited steering committee. Johnson has served as a committee member the last four years.

The 21st annual dinner to raise funds for waterfowl conservation work will be held Oct. 1 at El Cortez Hotel. Tickets sell for $15 each and net proceeds will be sent to Ducks Unlimited national headquarters in New York for use in waterfowl restoration work on Canada's prairie marshes. Last year $10,000 was raised in San Diego to help perpetuate the duck supply.

Be On Time Tomorrow, GD/E Wives Warned

GD/Electronics wives and their guests are asked to be prompt at their luncheon in the Sea World's Hawaiian Punch Village tomorrow (Aug. 13). The catered lunch will be served sharply at noon and there can be no delay. Following the meal, the group will tour the Mission Bay marine park.



NEW "SKY BOX" — Eighteenth C-141 horizontal stabilizer is swung into brand new Southern Pacific custom-built car, built just for GD/Convair's use in transporting huge C-141 empennages across U.S. on 8-day journey to Lockheed-Gorgia plant. By next year six of the advanced type of flat cars will be shuttling back and forth across the country with C-141 empennages.

Improved 'Sky Box' Flat Car Built to Carry Empennages

An improved and larger hydra-cushion "sky box" flat car, built especially for GD/Convair by Southern Pacific Railroad, went into use the latter part of July as it carried the 18th C-141 empennage cross-country to Lockheed-Georgia's Marietta plant.

The new car incorporates several structural improvements on the design of the original Southern Pacific hydra-cushion car which was furnished Convair a year-and-a-half ago for transporting the huge empennage stabilizers.

Greatest advantage of the new type of car is the lower height of the joint where hood and sides mate together. The former 11-ft. height has been reduced to 6 feet. Riggers now can stand and work right on the floor of the car, instead of being forced to climb on the inside fixtures while guiding hood sections into place.

Also, the lower sides eliminate the necessity of structural bracing inside the car, which allows more working space for men loading the large parts.

A rachet-type turnbuckle is installed to secure the hood to the car floor. The car also carries a special mast and winch arrangement, at Lockheed's request, to ease unloading operations at the Marietta end of the line.

The car is wider than the first type. Otherwise, basic measurements are approximately the same. Overall length is 60 feet; height, 19-ft., 4-in.; width, 10-ft., 10-in. The top is divided into two sections instead of three and is a solid mass without the special cupolas built into the other flat car to take care of stabilizer tips.

The first Southern Pacific hydra-cushion car will continue in use until after the first of the year when it will be pulled out of service for modification to the new design. Four more advanced-type hydra-cushion cars will be supplied by next year to support the seven-a-month production rate of C-141 empennages.

The same number of shock-controlled Santa Fe cars will be furnished to keep pace with the delivery speed-up. They carry all associated parts — elevator, rudder, leading edges, bullet, and miscellaneous components.

Shipping personnel, under Jack Sheldon, receiving transportation administrator, coordinated requirements built into the new car. R. E. Walkup, Southern Pacific mechanical engineer, represented the railroad, working closely with J. J. Janssen, Convair packaging specialist, who directed design.

YEARS OF SERVICE — Cdr. R. A. Evans, BUWEPS representative, presents Elby (Sam) Bass and Frank Urban letters of commendation upon their retirement. Bass, industrial security specialist, leaves Navy Aug. 15 after 37 years military and civil service. Urban, inspector, ended nearly 40 years Aug. 1.

Divisions Battle For Safety Lead

For the first time since the start of General Dynamics divisional safety contests, Pomona has been nudged out of the lead in one of the categories.

Safety Standings

Division achieving best record:

Current month: (1) Astronautics division, (2) Pomona, (3) Convair. Year to date: (1) Pomona, (2) Electronics-Rochester, (3) Convair.

Division achieving best improvement:

(1) Pomona, (2) Canadair, (3) General Atomic.

Astronautics, with its first "call" of the race, has taken over No. 1 in "best record of the current month" with Pomona second and Convair third.

Pomona, however, through June continued to lead all other categories, "year to date" and "best improvement."

Since the exciting race began, the "place and show" positions in the current months have been held by a variety of "horses," with divisions jockeying for a shot at the lead. Near the top at one time or another have been Stromberg-Carlson, Electronics, Material Service, Fort Worth.

The best "year to date" standings have remained constant since the barrier was lifted, with Pomona leading Electronics and Convair.

Meanwhile, in the "best improvement" category, consistently led by Pomona, Canadair currently has moved up to second place and General Atomic (with its first call of the race) is running third.

Algie A. Hendrix, Corporate vice president-industrial relations, reported that during June six divisions (Astronautics, Pomona, Convair, General Atomic, Electronics-SD and Electro Dynamic) achieved perfect safety records. Corporate-wide, severity is down 52 per cent and frequency improved 21 per cent.

ALL NAVY — Ens. Patrick W. Sullivan, USNR, administers enlistment oath to brother, Airman Robert E. Sullivan, making latter fourth Navy man in Sullivan family. At left is their father, Capt. Patrick J. Sullivan, USNR, a vice president of General Dynamics Corporation, who witnessed ceremony at Naval Air Station, Floyd Bennett Field, N.Y. A third son, Lt. (jg) Dennis P. Sullivan, is member of Fighter Wing VF 142 aboard USS Constellation. Ens. Sullivan is stationed at N.A.S. Adak. Latest Sullivan to join Navy is Georgetown University graduate and staff member of Long Island Star Journal. Elder Sullivan was World War II Navy flyer.

GD/Convair-Built F-106, T-29 to Serve In Flight Evaluation of Systems For F-111

Two GD/Convair-built workhorses—an F-106 and T-29—will be used to flight test certain F-111 systems.

The F-106B, a two-seated trainer version, will be used initially in evaluation tests of the radar altimeter and terrain-following radar systems, built by Minneapolis-Honeywell and Texas Instruments. Flights are already in progress.

Modification is in progress on the T-29 (military version of the Convair 240). It will serve as a flying test bed for evaluating four of five F-111 systems from early in August through 1965.

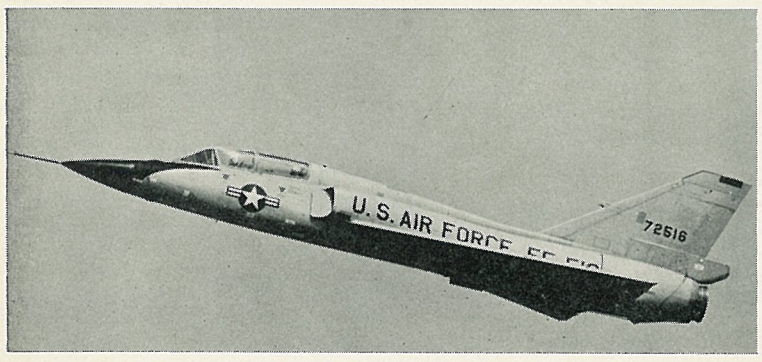
Modification of the two aircraft was carried out in modernization and development departments. E. E. Finch is manager.

Modifications on the F-106 mainly consisted of replacing wiring and attaching points for external pods to carry equipment and instrumentation.

The radar altimeter is used to determine the airplane's height above ground. The terrain-following system is used to automatically control the airplane at very low altitudes above the terrain while the plane follows a contour of the earth's surface.

Flights in the F-106 have been made by R. L. Johnson and W. H. Harse of GD/Fort Worth flight department.

Roger Scott is chief of pre-F-111 flight test, and C. B. Cox is flight test engineer on the project.



GOING UP — F-106 modified at GD/FW is being used in evaluation tests of certain F-111 systems.

Divisional Transfers

(Following are recent personnel transfers among General Dynamics divisions. In parentheses are dates when individuals joined the company.)

Herbert Erbe Jr., (1953) from Astro to GD/E-Rochester F-111 program; **Charles A. Benner** (1948), **Richard C. Stettler** (1953), **Loren D. Harber** (1961) from Astro to Convair engineering; **Joseph Falcone** (1961) from Astro to GD/E-Rochester F-111 program.

Edward J. Beveridge (1963), **John C. Lievens** (1951), **Robert W. Squire** (1957) from Astro to Convair engineering; **Raymond D. Frazier** (1958) from Astro to Fort Worth material control; **Alvin L. Burger** (1962), **Edward J. Porter** (1962), **Stanley E. Ament Jr.** (1962) from Astro to Convair engineering; **Robert L. Gentry** (1960) from Astro to GD/E-Rochester F-111 program.

Charles W. Washam (1956) from Astro to Fort Worth procurement planning; **Arthur W. Bluder** (1942) Astro to Convair engineering; **Wade Bryn** (1963) from Pomona to Fort Worth purchasing; **Oliver F. Oldendorph** (1949), **Clement B. Wells** (1950) from Astro to Convair engineering; **Bennie T. Whatley** (1961) from Astro to GD/E-Rochester production control.

Oceanography Team Briefed

Oceanographic studies and facilities at GD/Electronics, Rochester, N. Y., were on display when that division hosted the summer meeting of the Oceanography Task Team of the National Security Industrial Association last week (Aug. 4-5).

The some 70 attendees visited GD/Electronics floating laboratory, the self-propelled General Dynamics barge, Darius, moored in the center of Seneca Lake and inspected the half-million gallon indoor tank.

Representing the Navy at the meeting were Rear Adm. C. A. Karaberis, director of anti-submarine warfare programs for the Office of Naval Materiel; Rear Adm. A. S. Born (ret.); Rear Adm. P. D. Gallery (ret.); Rear Adm. M. E. Garrison (ret.); Rear Adm. Denys W. Knoll, Oceanographer of the U. S. Navy; Rear Adm. Edwin C. Stephan (ret), former Oceanographer of the Navy.

ASTRO ART SECTION WINS HIGHEST HONOR

Work of GD/Astronautics art section (Dept. 126) under Manager S. B. Hodge has received international recognition with inclusion of four posters in the current issue of Graphis (International Journal of Graphic Art and Applied Art).

The Swiss-published, tri-lingual journal chose the Astro art from among award-winning pieces shown at the 18th annual Exhibition of Advertising and Editorial Art in Los Angeles, for inclusion in a feature, "Western American Advertising Art."

Critics' reaction to the Astro posters is illustrated by tracing the path of the work to its publication in Graphis: some 5,000 advertising art entries were submitted to the Los Angeles exhibition; about 500 were chosen for hanging; and finally, the magazine reproduced 56, including the Astro quartet.

Of the posters illustrated, Hodge served as art director for three, with Phil Kirkland as designer. The fourth was directed by Tom Suzuki, with Burt Brockett, designer.

NUCLEAR SOCIETY HEARS GD/FW MAN

W. E. Dungan, GD/Fort Worth Dept. 64-2, recently spoke to the American Nuclear Society on "Advances in Neutron Dosimetry."

People Mobility

Bowers, Meador, Ackerman, Lombardo, Johnson Shift

(Continued from Page 1)

sign. After four years with the Atlas program he left Astronautics in the spring of 1960 to become vice president and general manager of the Electronics Division of AVCO, engaged in the development and production of military electronics equipment.

* * *

MEADOR REJOINS CONVAIR DIVISION

Chester L. Meador, vice president-contracts for General Dynamics Corporation since 1961, has been named to head up sales and contracts at Convair division.

Meador's appointment as GD/Convair vice president-sales and contracts was announced late last month by Division President J. H. Famme.

During his years with the Corporation Meador has been responsible for sales contracts both for Corporate Office and the former Convair division.

Chet Meador

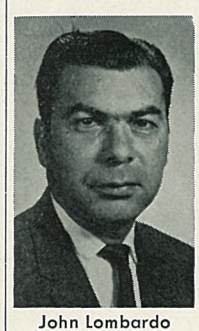
Meador, a native Missourian, joined Consolidated Aircraft Corp. at San Diego, Calif., in 1940. Two years later he transferred to Fort Worth division where he was supervisor of estimating and pricing. After two years service in the Army he was assigned to contracts at San Diego in 1946. In 1950 he was named Convair San Diego contracts supervisor and executive assistant to contracts manager.

In May, 1953, he was appointed assistant to the director of contracts in General Office; two years later became assistant director of contracts; and in March of 1960 was named Convair director of contracts. He went to Corporate headquarters in New York City the following year.

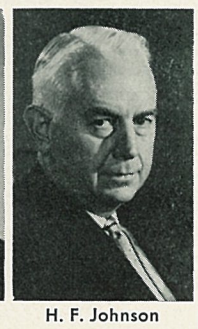
* * *

LOMBARDO NAMED S-C EXECUTIVE VP

Expansion in the scope of operations of the Stromberg-Carlson division and appointment of an executive vice president have been announced by Stromberg-Carlson president John H. Voss.



John Lombardo



H. F. Johnson

John L. Lombardo, veteran of more than 20 years in the field of communications and electronics, goes to Stromberg-Carlson in this newly created position from San Diego where he had been general manager of the GD/Electronics facility.

S-C, which has principally been a telecommunication manufacturing firm serving the Independent telephone industry, has now been assigned by Corporate headquarters additional responsibilities for commercial and industrial electronic products.

Addition and introduction of these new lines of products places a greater load on management, Voss said, as he also announced appointment of Hershall F. Johnson as controller.

Johnson, who had been controller of GD/Electronics in San Diego, will head an expanded controllers operation which will include planning, forecasting and statistical information. He will be assisted by Robert L. O'Connor, who had been serving in this position for the telecommunication operation.

Lombardo will assume primary responsibilities for engineering, manufacturing and the smooth introduction of new products.

* * *

ACKERMAN BECOMES ELECTRONICS VP

Richard A. Wilson, president of GD/Electronics at Rochester, N.Y., has announced appointment of Sam L. Ackerman, formerly Astronautics vice president-electronic programs, to the post of GD/E vice president-operations. The position is a new one, combining responsibility for all of the operating functions — research, engineering, manufacturing, and quality control. Consolidation of these functions under one executive officer is an important step in strengthening the organizational structure of this division, Wilson explained.

Sam Ackerman

Ackerman, originally from New Jersey, attended schools there, leaving to enter service as an officer in the Army Signal Corps during World War II. After several years in the electronics industry, he was recalled to active duty in Korea. Subsequently, he served with the Air Force and then with RCA at Patrick Air Force Base in Florida.

* * *

PRIM IS APPOINTED ASTRO PROGRAM HEAD

Donald C. Prim, veteran electronics engineer and executive, has been named program director—electronic programs at GD/Astronautics by President J. R. Dempsey.

Don Prim

Prim, a graduate of Indiana Technological College, was a developmental engineer with Ford Instrument Co., Line Material Co., and at Leeds and Northrop Co. before joining General Dynamics in 1951. In various electronics assignments he has worked on the Doran tracking system, Atlas radio-inertial guidance, Atlas weapon system support and checkout equipment, Azusa Mark I and II, Glotrac and Satar.

He became manager of trajectory measurement and control—electronic programs in 1962 and the following year was named assistant program director in the same project office.

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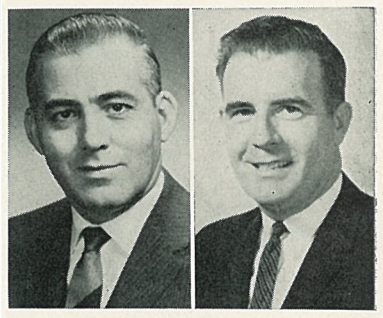

Grady Holt, left, now head of the Corporate field office at Huntsville, Ala., and John Healy, right, who is manager at the Cape Kennedy (Cocoa Beach, Fla.) office.

Other Corporate field office managers include: **F. Robert Heyner,** Cambridge (Mass.) office; **George J. Vila,** Cleveland, O.; **J. A. Bothwell,** GD representative, Colorado Springs; **Fred deFrance,** manager, Dayton, O.; **John Fitzpatrick,** Houston; **R. W. Wright,** Langley (Hampton, Va.); **James H. Mason,** Los Angeles; **Edwin Reynolds,** Omaha; **Paul Brandt,** Red Bank (Red Bank, N. J.); **John King,** Rome, N.Y.; **J. J. Walden Jr.,** Sacramento, Calif.; **Bob A. Roberts,** San Antonio; **Clifton Brewer,** San Bernardino, Calif.

TOPS — Carolyn Buman, Astro Dept. 512, took honors for best arrangement and best corsage, and also won Ona Mae Carroll Memorial Award presented by Arnold Carroll in memory of his wife.

Fruit, Flowers Fill Clubhouse

ARA Clubhouse auditorium was banked with fruit, flowers and vegetables—including over 1,000 dahlia blooms—when General Dynamics Garden Club held its summer show there July 25-26.

Judges were confronted with a total of 354 entries in 49 classes!

LaVonne Splinter, Convair Dept. 2-0, received the club trophy for best dahlia blooms in the show, while her husband, Charles, Astro Dept. 759, took top honors for the best three medium blooms.

The Ona Mae Carroll Memorial Award for the best arrangement went to Carolyn Buman, Astro Dept. 512, who also won best-of-show honors for her corsage entry.

Arnold Carroll of Astro won two best-of-show awards including that for three miniature ball dahlias and for three pom pons. An award for the smallest bloom entered went to Henry (Convair Dept. 141) and Margaret Boyd, and Evelyn Finley, Convair Dept. 14-4, entered the largest bloom.

Astro's G. Short, Dept. 673, took top award for vegetables, and Ray Sharman, Astro Dept. 250-1, entered the best fruits.

In the children's division, Donald McMillan, son of Donald L. McMillan, Astro Dept. 143-6, won best-of-show honors.

Other Convair winners included Clayton Finley (wife, Evelyn, in Dept. 14-4), Gene Zimmerman, Dept. 131, his wife, Grace, and son, Dennis.

Astro winners included Martin Walsh, Dept. 718; R. H. Moore, Dept. 832; Mary Short, Dept. 673 (ret.); J. R. Buman (wife, Carolyn, in Dept. 512); C. V. Spear, Dept. 141-2; Helen Spann, Dept. 953, her son, Bill, husband, Ken, and Florence Baldwin; Yvonne McMillan (wife of Donald), and son, Anthony; Mike Alianelli, Dept. 780, daughter, Nancy, son, Richard, and J. Asaro.

CONVAIR'S STUCKEY HEADS QC SOCIETY

L. C. Stuckey, GD/Convair supervisor in inspection, was installed as chairman of the San Diego Section, American Society for Quality Control, at a July 25 dinner-dance ceremony at Point Loma Inn.

The society's national president, R. L. Fiaschetti of North American's Space and Information Division, was present to conduct the installation.

Other officers seated for the coming year were L. I. Fredrickson of GD/Astro, vice chairman; H. H. Mishler, also Astro, secretary; and T. F. Reynolds of Cubic Corp., treasurer.

Stuckey succeeds M. R. Seldon of Astro, outgoing chairman, who was commended at the meeting for his efforts in raising the standards of the society during his term in office.

Hunter Safety Class to Begin

General Dynamics sons and daughters may sign now for hunter safety courses in progress at the CRA Gun Club.

Registration may be made by leaving names with Frank Marchant at Gillespie Field, phone 448-1825.

Each course runs for three consecutive Saturday mornings, from 9 a.m. until noon. Intensive training is given in the handling of rifles and shotguns, ammunition, and safe practices on the rifle range or in the field.

Lectures will be supplemented with films and actual firing practice on the Gun Club ranges. A comprehensive written exam is given at the final session. Certificates and brassards are given for satisfactory completion.

Qualified Convair and Astro men are participating as instructors.

The course is offered so that young people under 18 can obtain hunting licenses in compliance with California state law. (Effective July 1, the law was changed from 16 to 18.) However, the instruction is open and recommended to all beginners of any age.

Students are asked to use their own guns, if at all possible. Only charge is 50c a session.

Classes are limited to 14 persons. However, courses will be conducted continuously to take care of all who sign. There is still time for a complete course before the hunting season opens the first part of September.

Rogue River Trip Cancelled

Annual "rough water" voyage down the Rogue River has been cancelled this year by the Convair Management Club-sponsored Air Explorers Squadron No. 340.

The boys and three adult leaders, Jim Megargee, squadron adviser; Gene Boyd, and Nate Wells, had originally planned to leave this Friday (Aug. 14) for the Oregon city of Grant's Pass, start of the river trip. However, unforeseen circumstances forced cancellation of plans.

In lieu of the two-week journey, boys will probably make shorter trips nearer to home. In sight is a week of fishing and surfing along Baja California coast, a repeat of the Fourth of July weekend to San Miguel, north of Ensenada.

If enough wish, a mountaineering weekend in the Sierra will be arranged, said Megargee, as well as a variety of other activities dependent upon the Explorers' interests.

All General Dynamics sons, between the ages of 14 and 18, are eligible and welcome to join the GD squadron. Meetings are held on Tuesdays, 7 p.m., at Squadron 340 headquarters at the seaplane ramp along Harbor Drive. Next meeting will be Aug. 25.

For information, call Megargee, Plant 19, ext. 641.

ASTRO LENS PLANS QUARTERLY CONTEST

Astro Lens will hold its third quarterly competition for black and white prints and color transparencies at a meeting Aug. 16, 7:30 p.m. in Balboa Park's Photo Arts Bldg. The session is open to all San Diego-area General Dynamics employees, although only club members may enter the contest.

Convair Will Open Salvage Aug. 15, 29

Convair salvage yard adjacent to Gate 5 at Plant 1 will be open the mornings of Aug. 15 and 29 for employee sales.

All General Dynamics people are permitted to shop at the salvage yard between 8 a.m. and noon upon presentation of ID cards.

WELL PADDED — Astro has introduced new type polyurethane foam material with special surface film. Material may be used to cover work benches, stock shelves, transportation carts, etc., or may be used in reusable containers like those containing electronic components above. Andrew Kirinich, left, autopilot manufacturing area assistant foreman, shows nylon gloves packaged with critical items to Don Leja, materials handling and packaging engineer, and Thelma J. Colvin, electronics assembler.

New Easy-on-the-Eye Material Will Pad Benches and Shelves

GD/Astronautics is the first Pacific Coast industry to adopt polyurethane foam with a "new look" for its operations.

The "new look" is present in the form of fused elastomeric polyurethane surface film coating the sides of regular foam, the old protective stand-by.

The result is a remarkable surface resistant to abrasives, cuts, tears, gasoline, oil and most solvents as well as non-toxic, nonallergenic and thermoresistant to cold.

And the beige finish Astro has selected is easy on the eye.

Available in sheets from three-eighths to one-inch thick, the material may be cut to size or ordered pre-cut by the manufacturer with rolled, heat-sealed edges.

In this form Astro uses it as padding for work benches, stock room shelves and transportation carts when shock and vibration must be kept at a minimum to safeguard sensitive parts and components. It replaces older types of foam which often collected particles and chips that could damage surface finishes.

New at Astro is the use of this material in making special protective envelopes of various sizes and shapes, complete with snap fasteners. They guard machined surfaces in machine shop and fabrication or encase ring couplers, potted assemblies, components, etc., in electronic manufacturing.

Each envelope is reusable with the originating department number affixed permanently.

Astro's material handling and packaging engineering (Dept. 405) under C. C. Harper is coordinating use of this material in all operations.

Seminar Discusses Design Improvement

A seminar in "Improving Electronic Fabrication Design," recently completed at GD/Astro, is a current aid in achieving the division's total goal of product improvement.

Conducted jointly by electronic process control and educational services for personnel in electronics design and production areas, the seminar was coordinated by Will Weidenfeller, Dept. 130-3, and Rich Kolek, Dept. 141-2.

The seminar program was originally suggested by J. A. Hughes, assistant chief engineer, Dept. 963-1, and may be expanded in the near future to benefit other GD/Astro design groups.

Teams of seminar participants concentrated on actual production situations during five sessions totalling nine hours' effort.

Astro Earns Thanks Of Altus Community

ALTUS AFB — GD/Astronautics employees here have received a big community "thank you" for recent gifts to two worthy causes.

Through their Con-Trib-Club Advisory Committee, employees gave $975 to the Jackson County Memorial Hospital. Funds will provide a new all-purpose emergency room table and operating light.

Second gift was $700 to the Jackson County Christmas Seal program which put the annual drive "over the top" for the first time.

Glenn Berg, Advisory Committee chairman, Frank Campbell and Harry Hamerdinger, committee members, made the presentations.

REGISTRATION OPEN FOR JC STUDENTS

Registration for new students at any of the San Diego Junior Colleges begins tomorrow (Aug. 13) at the Admissions and Operations Center, 835 Twelfth Ave. The office will be open daily between 8 a.m. and 8 p.m. Continuing students were to register earlier this week.

Raffle to Boost Scholar Fund

Hundreds of dollars worth of valuable raffle prizes will boost GD/Convair Management Club's scholarship fund at the Aug. 19 meeting, set for Stardust Motor Hotel.

Stressing the meeting's educational theme, the committee in charge is canvassing the city for top prizes to attract chances in the club's raffle. All proceeds go to the Management Club's scholarship account which aids several young people in furthering their education. Besides supporting those Convair sons and daughters still holding Management Club scholarships, the club diverts part of its raffle proceeds to the San Diego County Citizens' Scholarship Foundation.

Local department stores, theaters, restaurants, golf courses, have promised gift certificates ranging in value from $25 to dinner for two and greens fees. Besides these attractive prizes, many other articles will be raffled at the Wednesday session.

Mort Rosenbaum, GD/Astronautics vice president, will be main speaker. His topic is "Manned Space Stations."

Five MacSave-it trophies will be presented to bring division cost reduction honors up to the current month. Also, Mug of the Month will be tapped.

John Doig, service parts manager, is general chairman with his department sponsoring.

Dinner tickets are on sale at all regular outlets.

When telephoning, never mind the weather. Get to the point. Telephone time costs money.

Pot Increases In Trapshoot

It was a hot day, and a hot match, July 26 at Gillespie Field Range when 11 determined trapshooters vied to break 50 straight for the big prize in the Troy shoot, sponsored by Convair Gun Club.

Herb Langfeldt of National City and John McCully of Coronado went straight in the 16-yd. but flubbed the handicap. Now the overall pot stands at $241.

Langfeldt and McCully's take was $17 each. Jim Prewitt of Spring Valley made $8.25 for high handicap score of 47.

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The night ATA registered trapshoot the preceding Friday evening, July 24, brought out a larger crowd, 65 shooters and spectators.

Fifty targets were thrown for 16-yd. and 50 for handicap but doubles was cancelled for lack of time. As it was, the two events lasted until 11:30 p.m.

Carl Haynes and John Smith of San Diego and L. P. Johnson of Chula Vista all shot 45s to tie for first in Class A. Jim Prewitt of Spring Valley won Class B with a 45. Don Estes of Lakeside stood high in Class C with 46.

Ada Johnson's 47 was good for first in Class D and high score in 16-yd. She shot her first string of 25 straight then missed three in the second 25.

John McCully and Estes tied with top handicap scores of 47. Ada Johnson was high lady with 44.

Travelers to Meet For Final Briefing

Final briefing for all General Dynamics travelers to Mexico will be next Tuesday (Aug. 18) at 7 p.m. in the Convair executive dining room, Pacific Hwy.

James Hardison of GD/Convair, tour conductor, will give last-minute instructions on visas, vaccinations, money exchange to be sure everything is in order before the Aug. 21 departure date.

There are still openings for three more persons, said Hardison. Anyone interested is urged to attend the meeting.

The group will leave the Bldg. 19 parking lot for Mexicali at 1 p.m. Aug. 21 and return home Sept. 6. During their more than two weeks in Old Mexico they will visit Guadalajara, Mexico City, Cuernavaca, Taxco, and Acapulco.

Ernest Allen Sets Top Grade in Class

Ernest W. Allen of GD/Astronautics' material handling and packaging engineering (Dept. 405) has been lauded for recording the top grade in his class during recent specialized training.

Allen attended the Joint Military Packaging Training Center course at Aberdeen Proving Grounds, Md. Over a four-week period Allen attended courses in "Preservation and Intermediate Protection" and "Packaging and Carloading."

With Astro since 1957, Allen received a bachelor's degree in mechanical engineering from the University of Texas.

'Trapshooting Tips' Movie on Schedule

A film, "Trapshooting Tips," has been obtained by CRA Gun Club for five showings to all interested General Dynamics people over the weekend of Aug. 22-23.

Priming gunsmen for the coming hunting season, the movie will be run at Gillespie Field Clubhouse at 4, 6, 8 p.m. on Saturday (Aug. 22) and at 3 and 5 p.m. the next day (Aug. 23).

A donation of 50 cents each will be collected from adults. Children under 16 will be admitted free.

TEL-4 REVIEW — Pan American World Airways team at GD/Convair last week to review TEL-4 program and procedures are, seated (from left): J. E. Queen, quality control engineer; Carl Howard, TEL-4 project engineer; R. B. Paz, subcontract administrator. All are based at AF Eastern Test Range, Patrick AFB, with Pan Am Guided Missiles Range Division. Standing behind trio is W. T. Dorrance, Convair's manager of electronic systems and TEL-4 program manager.

Drivers Consume 'Tons' of Food At Pine Crest Breakfast Rally

Over 100 sports car fans and their families polished off mountains of pancakes, ham and eggs at the CRA club's Aug. 2 breakfast tour to Pine Crest, Convair Recreation Association's mountain resort.

Family of Bob Hayward (Dept. 6) spotted the greatest number of the 25 items listed along the road from Camp Elliott through Poway, Ramona, Julian. Families of Tom Kienholz and Charles Mohr, both Dept. 6, tied for second spot in the sharp-eye contest.

After the huge harvest-type breakfast, drivers paired into teams to compete in tire-changing competition. Sid Weiner (Dept. 27) and Charles Backus (GD/A) led the field in knocking off wheels. Teams of Dick Bender (Dept. 6) and George Trivoli (GD/E), and George Nicoloff (Dept. 6) and Vic Millman of General Atomic tied in time it took them to bolt on wheels.

Fred Thatcher (Dept. 25) won the cleanest car prize with his sparkling XK-E Jaguar coupe. Tied for second were Grace and Gerry Wright's (Dept. 6) 3.8 Jaguar sedan and the Chevrolet SS Malibu sedan of Hazel and Byron Ferguson (also Dept. 6).

Dorothy and Jim Franklin (Dept. 6) won the egg throwing contest. Vern Matthews (GD/A) and his daughter, Terry, were next best shots.

Responsible for feeding the crowd were CRA Commissioner Wright and his wife, Grace; Mr. and Mrs. Ferguson; Thatcher, and Matthews, cook committee.

Collectors to Hold Raffle and Auction

CRA coin collectors will have a chance to win 1956 and 1957 proof sets and the Red Book, grading book, in the raffle at next Thursday's (Aug. 20) meeting.

Refreshments, door prize, and auction will be on the program at the session in the main Convair cafeteria, south of Bldg. 19. Meeting time is 7:30 p.m.

Coin Club's burgeoning attendance reached a high of 55 at last month's meeting. Main attraction was the auction of 35 lots of desirable coins, which brought good prices.

GD/E MEN'S GOLF CLUB SCHEDULES AUG. 23 MATCH

GD/Electronics men golfers have set their next match for Sunday, Aug. 23, at Rancho Bernardo Country Club course. Tee-off time is 10 a.m.

Second Call Sounded For Winter Bowlers

Second call is out for bowlers to sign immediately for CRA winter leagues so that they will have a chance to get the spot they want. League play starts immediately after Labor Day.

Convair and GD/Electronics men and women may register for any of the nine leagues now forming by leaving their names at CRA office, ext. 1245, Plant 1.

Complete details will be given by Co-commissioners Mike Brooks, Plant 19, ext. 410, and Jim Hayman, home phone, 466-1262. Brooks may be reached evenings at home, 469-8793.

Pearl Village Charge Dropped at Sea World

Admission charge to Sea World's Murata Pearl Japanese Village has been cancelled. Dolphin Club members may now visit all Sea World exhibits, including the pearl diving and pearl production displays, at the $1.75 discount rate.

Memberships may be obtained by presenting Dolphin Club cards available at Convair and GD/E employee services. These entitle holders to a 50¢ reduction in regular admission price.

Dutch Stamp Fan Invites Exchange

GD stamp collectors have received a generous offer from an instructor in the Dutch Observer Corps who invites letters and exchange of stamps.

M. van Sabben says that he can supply first-day covers and complete serial stamps from the Netherlands, Surinam, Dutch Antilles, as well as miscellaneous stamps from other parts of the world.

His address is Cartesiusstraat 22, Deventer, Netherlands.

JEWISH FEDERATION GETS CON-TRIB AID

Convair Employees' Con-Trib-Club approved a $500 donation to the United Jewish Federation for its current fund-raising campaign at the July 21 committee meeting. Tentative approval was given another $500 for the City of Hope —Duarte. Next Con-Trib committee meeting will be Sept. 1.

GD/E BOWLERS MAY SIGN FOR WINTER LEAGUE

GD/Electronics bowlers may sign now for a GD/E mixed league to go into action Sept. 10 at Frontier Lanes. The league will bowl Thursday nights at 6:30 during the winter season. Register with Ray McIntyre, ext. 1978, or Bob Funk, ext. 1974, both Plant 1.

KEN SAMPLES NOW RESERVE LT. COL.

Ken Samples of GD/Convair recently received his promotion to rank of lieutenant colonel in the Marine Corps Reserve. He spent the last two weeks on active duty at Camp Pendleton, Calif., where he was assigned to the Senior Staff School.

CRA Calendar

(Convair Recreation Association has some 30 activities in operation for Convair and Electronics people. For information call CRA Headquarters, ext. 1245.)

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AEROMODELERS — Flying sessions Saturday and Sunday mornings, 8 a.m. to 1 p.m., Clairemont Flying Site.

BOWLING — Register now for winter leagues. Call CRA office, ext. 1245, Plant 1; Mike Brooks, 469-8793; Jim Hayman, 466-1262.

CAMERA CLUB — Joint CRA-ARA meeting Aug. 16, 7:30 p.m., Photo Arts Bldg., Balboa Park. Third quarterly contest.

COIN CLUB — Monthly meeting Aug. 20, 7:30 p.m., Convair main cafeteria, Pacific Hwy.

FENCING — Workouts and instruction each Friday night, 7-10 p.m., YWCA, 10th & C Sts.

FISHING — Regular meeting Aug. 18, 7:30 p.m., Gillespie Field Clubhouse. Potluck dinner at 6:30.

GOLF — CRA tourney Aug. 15 at Coronado course.

GUN CLUB — "Trapshooting Tips" film, five showings at Gillespie Field Clubhouse Aug. 22 and 23. Open Troy shoot Aug. 23; annual open merchandise shoot Aug. 30, both at Gillespie Field Range.

HUNTER SAFETY — Register for continuing courses sponsored by CRA Gun Club by calling 448-1825.

ICE SKATING — Thursday ice skating sessions for GD people, Mission Valley Ice Plaza, 6:30-8 p.m.

MEXICAN TOUR — Final meeting of GD tourists Aug. 18, 7 p.m., Convair executive dining room, Pacific Hwy.

MODEL RAILROAD — Work nights, Fridays, 7:30 p.m., open sessions, Sundays, 1-4:30 p.m., House of Charm, Balboa Park.

MOVIES — Reduced prices for General Dynamics people at State Theater, Euclid and El Cajon Blvd. General admission: adults, $1; children, 35¢.

PISTOL CLUB — Next club shoot Aug. 23, 9:15 a.m., San Diego Police Pistol Range, Federal Blvd. and Home Ave.

RADIO CLUB — Next meeting Aug. 20, 8 p.m., Harbor Drive club headquarters.

ROAD RUNNERS — Regular meeting Aug. 20, 7:30 p.m., Gillespie Field Clubhouse.

ROLLER SKATING — Free tickets at employee services for General Dynamics skate night Aug. 17, Skateland, Front and G Sts.

SOFTBALL — "Slow pitch" league games Thursday evenings, Central and Linda Vista playgrounds.

SWIMMING — Family swim night Aug. 15, 7-9 p.m., Mission Beach Plunge. Free tickets at employee services.

WATER SKI CLUB — Skiing weekends on Mission Bay. Call Gene Sevigny, ext. 1778, Plant 1.

GD/E Material Scores Victories

GD/E Material won both of its first two games in second round of CRA "slow pitch" softball play and Pre-War Personnel and GD/E Operations each took their openers. Both teams had byes in one of the first two weeks of play.

GD/E Material swept by Fire Dept. 10-0 on July 23 and went on the following week to knock out Convair Material, 20-3.

Pre-War Personnel won a close one from Hi-Lows, 6-5, the first week. Beasts beat Convair Material, 3-0.

Other July 30 scores saw GD/E Operations over the Beasts, 11-3; Hi-Lows downing Fire Dept., 4-3.

Tomorrow night Pre-War Personnel meets Convair Material on Central field at 8 p.m. GD/E Material vs. Beasts is at 6:45 p.m. and Hi-Lows vs. GD/E Operations at 8:20, both on Linda Vista diamond. Fire Dept. draws a bye.

Sports & Recreation

SURPRISE PARTY — John L. Lombardo (standing, left) is taken unawares by GD/E Golf Club's tribute at all-day golf and bridge party July 26. Fred Nuzzo presents, on behalf of club, a golf cart, golf club, and engraved mug. Ernie Paul, club president, stands at right background.

Surprise Golf Tourney Honors John Lombardo at Rancho CC

GD/Electronics golfers turned out in force to honor John L. Lombardo, who has headed the San Diego facilities as general manager since 1962 and is now moving his headquarters to Rochester, N.Y., as executive vice president of Stromberg-Carlson.

Nearly 100 GD/E Golf Club members and their wives joined in the surprise tribute at Rancho Bernardo Country Club July 26. The Clubhouse Terrace was turned over to the group for a full day, climaxed by a buffet dinner.

Lombardo received as mementos an engraved copper mug, etched with his picture, a "Bag Boy" golf cart, and a sand wedge.

He also garnered a cash prize in the blind bogey pay-off. Other blind bogey winners were Marty Dunn, George Oatman, Frank Smyer, Ray McIntyre, Howard McCray, Chuck McGehee, and Bill Morgan.

First low net scorer in flight A was Don Illeman with 66. Flight B low scorer was Fred Nuzzo with a net 71. Both won lazy Susans.

Jim Thompson was runner-up in flight A with a net of 68 and Dunn placed second in flight B. Second-place prizes were four top quality golf balls.

Golf balls also went to four linksmen in the hole-in-one contest on par-3 holes: John Hope, hole No. 2; Sid Freedman, hole No. 4; Don Waldron, hole No. 11; and Wynn Jones, hole No. 13.

Altogether, 66 golfers, including two foursomes from the General Dynamics Women's Golf Club, took part in the special links event.

'My Fair Lady' Tickets At Employee Services

Exchange tickets worth substantial reduction in admission charges to coming Circle Arts Theatre and Starlight productions are still on hand at Convair and GD/Electronics employee services outlets.

Discount night to Circle Arts' "My Fair Lady" is Tuesday, Sept. 1. Tickets bring cost of $4.50 seats down to $3.15; $3.75 to $2.60. They must be exchanged for seat tickets at Circle Arts box office two days before night of the performance.

Starlight exchange tickets, allowing 30 per cent reduction in prices of any seat, are good for all nights of the two remaining performances. "The Wizard of Oz" finishes its run this week, Aug. 13-16. "Sound of Music" dates are Aug. 27-30, Sept. 3-6. Meredith Willson's "Here's Love" has been cancelled and no other production scheduled to replace it.

Tickets can be exchanged at Borgen's Music Co., Broadway at 7th Ave., or at Balboa Bowl on performance nights.

Minutello's 77 Low in Tourney

Ray Minutello of Dept. 6 topped the field of CRA golfers at last month's tourney by stroking a 77 for low gross in the first flight. Ralph Way's 70 was good for first low net. Way is in Dept. 400.

Other winners in the 0-15 flight were Al Reiter of Dept. 115, second low gross with 79. Tony Zullo of Dept. 48 shot a 71 for second low net.

George Kureri of Dept. 401 held first low gross in 16-23 flight with 83. Second low gross was Bill Gille (Dept. 25) with a 91.

First low net in the same flight was Tobe Hundley of Dept. 400, 68. Frank Kany, also Dept. 400, was runner-up with 73.

In the 24-and-over flight Hawly Skilton (Dept. 6) won first low gross spot with 93. Second low gross was Howard Wilson (Dept. 115) with 94.

First low net was Bill Bullock of Dept. 15 with a 63, five strokes under nearest competitor, Bill Johnstone, Dept. 6.

The July 11 tournament was held over Bonita Valley Country Club fairways.

PLACES STILL OPEN IN MGMT. LEAGUE

There are still places open on two additional teams now being formed for the joint Convair and GD/Electronics Management Club Bowling League.

So far, a dozen teams have been organized, two more than the first quota. Parkway Bowl has agreed to hold 14 alleys for the Management Club bowling tournament. This allows room for two more five-man teams, open to the first 10 to sign up.

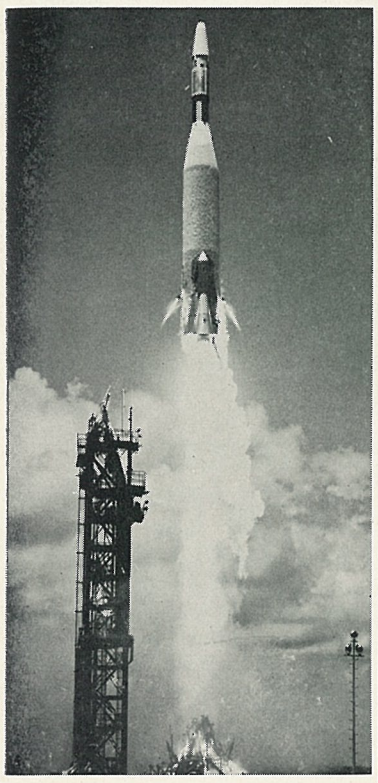
Dave Pearce at GD/E ext. 1975 and Vic Baros, Convair ext. 1551, are taking entries.

Bowling will start Sept. 14 and extend to April 12, every Monday night at 6:30 p.m.

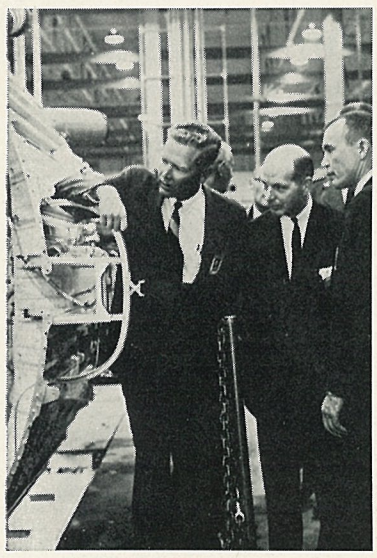
First of Test Units Shipped by GD/E

GD/Electronics has reported shipment of the first unit under a $2.2 million contract from the ordnance department, General Electric Co., for the "MK-412 Module Test Set," intended for installation aboard some of the U. S. Navy's Polaris missile submarines.

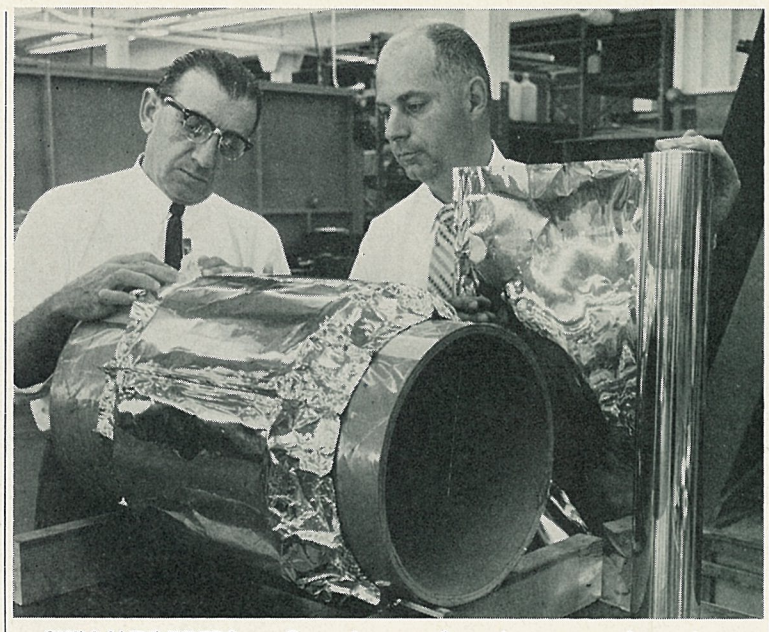
The module test sets are completely transistorized for compactness, reliability and low power requirements. Their function is to locate faults in various electronic modules that make up the fire control system and other sub-systems on Polaris submarines, if any are found to be performing imperfectly, and to assist in diagnosing trouble so the faulty modules can be replaced while the ship remains on station.



MOON HO! — Atlas-Agena booster speeds Ranger straight on target in recent moon shot.



INSIDE LOOK — Leonard Marks Jr., Assistant Secretary of the Air Force, center, peers closely into "plumbing" of Atlas SLV-3 at GD/Astro, while President J. R. Dempsey, left, and C. S. Ames, vice president and program director—SLV, explain key points.



SKIN WRINKLERS — Convair manufacturing research engineers, Gene Green and John Murphy, prepare test setup simulating cryogenic fuel tank to learn where wrinkles will occur in foil insulation cover.

GD/Convair Engineers Probe Mysteries of Wrinkle Patterns

Where does skin go when it wrinkles, is the question GD/Convair manufacturing research and development engineers are attempting to answer.

In a company-initiated study into a little-known field, they are wrinkling aluminum foil over and over on purpose to see if it is possible to predict and control wrinkle patterns.

Results of the explorative studies, if they are successful, could become extremely important in development of more effective insulation systems for liquid hydrogen fuel tanks propelling outer space vehicles, explained J. F. Murphy and E. D. Green, manufacturing research senior engineers.

Problems have cropped up in storage of liquid hydrogen, when the insulation vacuum system is evacuated and the excess material of the outer cover folds and wrinkles like skin on a dry prune. These wrinkles form pockets, or thermal windows, which cut down the reflectivity and reduce effectiveness of insulation.

The vacuum system is used to hold the insulation in place and keep loss of fuel by evaporation to the minimum both in flight and on the ground before launch.

"Insulation vacuum covers, made of thin aluminum foil, must be as smooth as possible at all times to keep the fuel tanks fully insulated," said Convair's research engineers working on the study.

If they can come up with a means of predictable wrinkling through patterns set in advance, or find a way of compensating for evacuation of air to keep the outer cover smooth as the insulation system becomes evacuated, they feel they will have made a giant step forward in the little-explored area.

Electronics Awarded AF and NASA Business

GD/Electronics at Rochester has announced receipt of a $796,000 contract from the Air Force for a program known as "Range Instrumentation Control System" and a $86,665 order from NASA for a study of "Laser Modulation at the Atomic Level."

The AF program, under the cognizance of Patrick AFB, provides for digital data transmission and processing between Cape Kennedy and four of the downrange stations of the AF Eastern Test Range. When completed in 1965, the system will provide the main control station at Cape Kennedy with automated control over the downrange instrumentation complex.

The NASA program relates to methods of internally influencing the radiating centers of active Laser materials in order to effect efficient Laser modulation. The study could eventually be applied to deep space communication systems.

Volunteers Pitch in to Paint B-36 Memorial at Airport

About 100 FW hourly and salaried volunteers participated recently in refurbishing the giant B-36 Memorial at Greater Southwest International Airport near Fort Worth.

A steam-cleaning job was carried out by second-shifters under direction of L. M. Mayfield, while Cliff Hubert supervised structural rework done by volunteers from Depts. 41, 72 and 73.

Dept. 74 supervisors J. H. Rhoades, H. A. Patterson, R. G. Bryden, and C. L. Bigham headed painters, who completed their assignment on a Saturday between 5 a.m. and 1 p.m.

Sam Keith, chief of traffic, is chairman of Management Club's B-36 Memorial Committee. W. F. Sutton, assistant factory manager, headed this year's effort, assisted by Lyle King, general foreman.

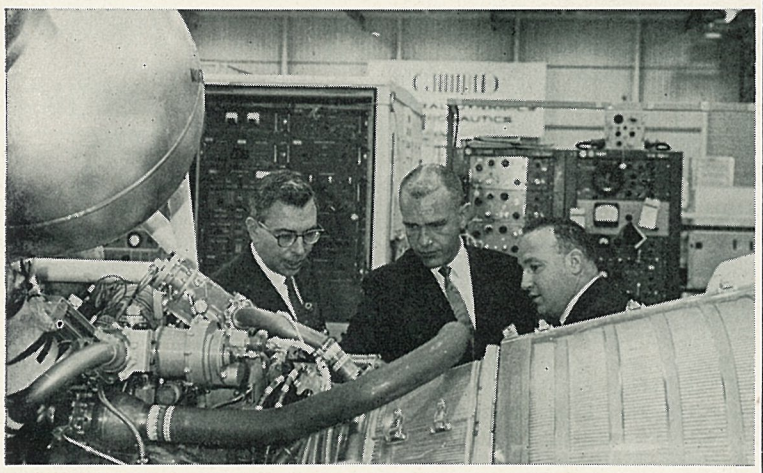
Sandblasting of the big bomber was sponsored by Amon Carter Foundation.

The B-36 was put on display at the airport in 1959, following a flight from Biggs AFB in El Paso.

Since that time, thousands of visitors have been led on conducted tours through the Peacemaker by Management Club volunteers.

From now on, though, visitors will see the B-36 from the outside only. Bomb bay and other doors were closed and locked. The measure was taken to help preserve the aging airplane.

King lauded support given by labor relations, wage and salary, manufacturing control and Depts. 40 and 74.



CLOSE LOOK — R. Duff Ginter, center, new Centaur program manager for NASA, studies Centaur parts closely during recent visit to Astro. Ginter said Centaur had long and bright future in interview following his appointment. With Ginter above are Ronald Rovenger, right, NASA resident manager at Astro, and Andrew Kalitinsky, assistant program director — engineering for Centaur.

Down on the Farm

Old Tractor Is Newest Relic In Growing Antique Collection

A turn-of-the-century steam tractor—complete with coal-burning boiler and smokestack—is the latest addition to H. S. Smith's collection of farm "relics."

The GD/Fort Worth assistant foreman, Dept. 25-3, has the tractor on display at his 80-acre farm near Cresson, 20 miles southwest of Fort Worth.

"I looked for an old tractor like this for years," said Smith, "then last year I found one not over 46 miles from here and bought it."

The 16-50 horsepower machine (16 hp pulling power and 50 hp on belt drive) was used in threshing oats, wheat and other grains. The model yielded to combines and gas-driven tractors in the early 1930s.

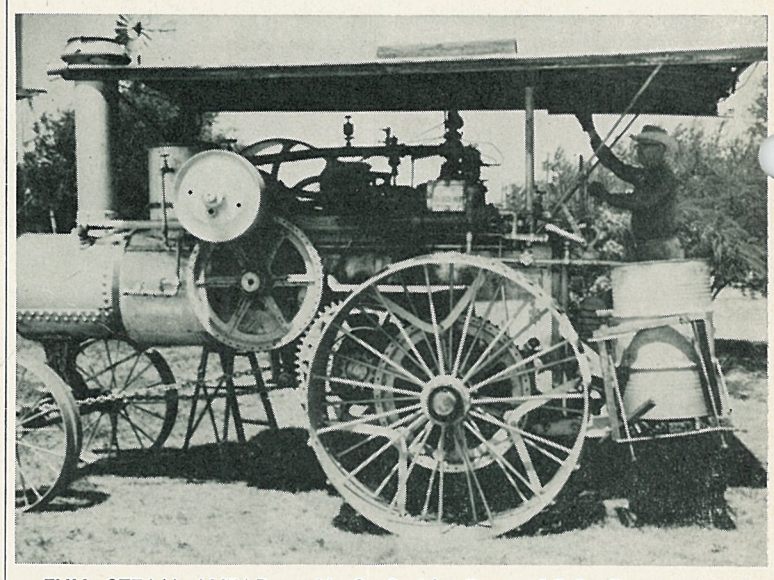
Resembling an early-model steam engine, the tractor worked on the same principle: wood and coal were burned in the fire box, feeding the boiler in front.

Smith, a GD/FW employee for about 21 years, refurbishes old equipment in his workshop. He is set up to do either acetylene or electric welding and most types of machine work.

Right now, for example, he's restoring the aluminum-painted tractor to its original colors—black boiler and red wheels.

Included in Smith's growing collection are an old grist mill, separator, and blacksmith shop equipment.

"It's a lot of fun," Smith says of his hobby, "and it gives me something to look forward to in retirement." He's always on the lookout for additions to his collection—an eye-opener, not only to the modern city dweller but to the old-timer who likes to reflect on how things used to be down on the farm.



FULL STEAM AHEAD — H. S. Smith, Dept. 25-3, fires up early-model steam tractor, latest addition to his collection of old farm equipment.

First C-141 Empennage Part Goes to Automatic Riveter

First C-141 empennage part, a horizontal lower surface panel, went onto one of three newly-converted automatic Erco riveting machines in GD/Convair's C-141 production area late last month as a major step in expediting C-141 production.

Convair's Erco drivematic riveters, which were used on 880/990 transport subassemblies, have been rebuilt to meet Lockheed-Georgia Co. and Air Force requirements for the C-141—mainly, to include application of wet prime in rivet holes as a corrosion preventive.

Also, the machines had to be changed to accommodate countersunk rivets instead of the 82-degree fuel-sealing rivets used on 880s and 990s.

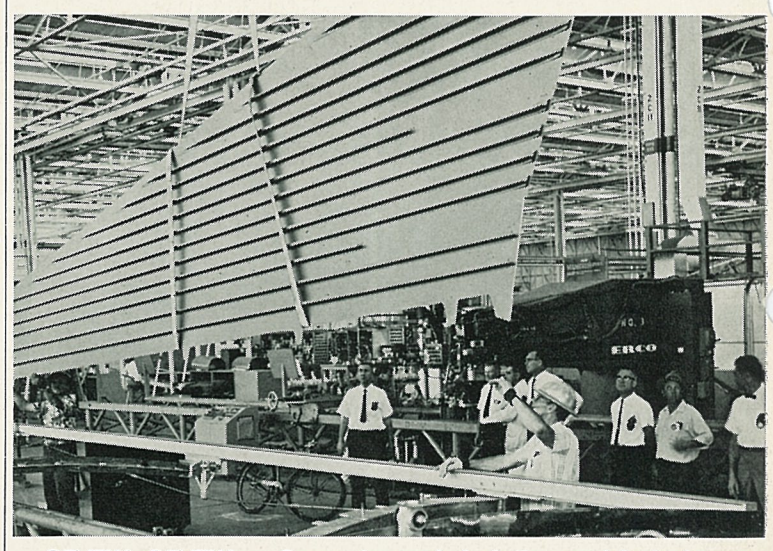
Manufacturing and development department directed the modification. Electrical engineers in Dept. 25-4 designed the electrical system change-over with Dept. 401-7 (tool services) doing the modification and checkout.

R. D. Bush of research and development designed the automatic paint applicator which squirts a tiny spray of prime into the rivet hole after it is drilled and before the rivet is fed into the hole by the upper ram.

The conversion job extended over several months due to the complex technical problems involved.

All four horizontal panels and four vertical panels of each empennage now will go to the automatic machines for riveting as C-141 production speeds up.

R. W. Miller, C-141 program manager at Convair, said that this use of automatic equipment is in line with program acceleration in all areas. Production rate will reach seven a month next year.



GENTLY, GENTLY — Crane riggers L. L. Sellers and D. R. Sperandio position first C-141 horizontal surface panel to go on Erco drivematic riveter after machine's conversion for C-141 parts. Watching are E. E. Miller, C-141 assistant foreman; R. D. Bush, process analyst; M. A. Julio (Dept. 401) who did modification and checkout; V. P. Mavrinac, tool services assistant foreman; Jack Benedict, C-141 assistant foreman; M. L. Merritt, transportation leadman; George Tahan of mfg. methods planning who made time and cost study.

'Share in America' Drive Adds 13,000 New Buyers

Nearly 13,000 regular purchasers of U. S. Savings Bonds by payroll deduction were added during the 1964 "Share in America" bond drive conducted by General Dynamics Corporation divisions.

Overall participation now is two-thirds of employment, the best mark in the Corporation's history, Algie A. Hendrix, General Dynamics vice president-industrial relations, reported.

Leading all divisions is Electro Dynamic with 87 per cent participation, followed by GD/Astronautics with 80.7 per cent and Liquid Carbonic with 78 per cent of employees.

Both Electro Dynamic and Liquid Carbonic registered spectacular increases to gain their positions of leadership.

Also ranking high were GD/Electronics personnel at San Diego with 75.6 per cent, GD/Convair with 70.3 per cent, GD/Pomona with 65 per cent, GD/Fort Worth with 63 per cent, Electric Boat with 60 per cent.

Corporate Office personnel increased to 75.8 per cent.

Not reflected in the standings was the fact that many previous buyers increased allotments during the campaign.

Hendrix commended campaign chairmen on their efforts and took particular pleasure in that the goal of 12,000 new subscribers was exceeded by 873 for a Corporation-wide total of more than 49,000 regular buyers.

"The Corporation endorses wholeheartedly the goal of this program, which is to provide individuals with the means to assist their country in maintaining its leadership and strength. Although the 1964 drive is officially over, we are depending on continued efforts to maintain and encourage participation throughout the year," Hendrix commented.

GD

SAN DIEGO EDITION
(Serving GD/CONVAIR
and GD/ELECTRONICS)

GENERAL DYNAMICS
NEWS

Vol. 17, No. 18 PUBLISHED BY GENERAL DYNAMICS CORPORATION 52 Wednesday, August 26, 1964

HOME AGAIN — Maj. R. R. Satterfield is greeted by B. F. Ferguson of Convair's F-102 project office after landing Convair-built interceptor Aug. 7. Plane was flown from AF Special Repair Activity, Mobile, Ala., to go into fatigue tests at San Diego plant. No. 57-845A, assigned to task for evaluation of F-102 aircraft structure, was built at Convair and delivered to Air Force seven years ago. It has spent some 1,200 hours in flight.

F-102 Returns to Coast For Life Service Tests

Seven years after it was delivered to the Air Force, an F-102 winged home again to General Dynamics/Convair this month, to spend the next 12 months undergoing tests to determine its life expectancy.

The cyclic fatigue test program will be carried out for the Air Force's San Antonio Air Materiel Area for evaluation of the projected service life of F-102 aircraft structure.

Actual testing follows a theoretical fatigue analysis task accomplished over the last several months by Convair structures group, and approved by SAAMA.

Fatigue testing will start around the first of the year at the structures laboratory where the Convair-built jet interceptor, No. 57-845A, is being stripped of equipment in preparation for testing.

During the first six months the F-102 will be loaded for positive maneuver and vertical gust flight conditions. Following that, the structure which supports the landing gears will be fatigue tested.

The plane will undergo the equivalent of 16,000 hours of flight — or four service life periods, established by the AF at 4,000 hours each. No. 57-845A has already chalked up around 1,200 hours in the air with the last four years or so spent with USAFE's 526th Fighter-Interceptor Squadron, Ramstein Air Base, Germany. It was flown to San Diego from the Air Force Special Repair Activity, Brookley AFB, Mobile, Ala.

It arrived at the Convair plant Aug. 7 and went immediately to field operations for dearming. Structures test engineers are now removing its engine, instrumentation, electronics, radome, ejection seat, and canopy for return to the AF.

Between now and the first of the year test engineers will be working up the test loads, preparing the loads programming equipment, and building test fixtures before loading gets under way.

John Morrow of engineering structures group is principal engineer responsible for the Convair task. W. D. Bowers, test engineer, will direct test operations under Ed Schiff, structures lab assistant group engineer.

Convair Begins Work on NASA Study For Prediction of Panel Vibration

A mathematical approach for advance prediction of vibration effects caused by aerodynamic flow on skin panels of aerospace vehicles will be formulated by GD/Convair under a new study contract from National Aeronautics and Space Administration.

The $213,000 study contract was awarded by NASA's Marshall Space Flight Center, Huntsville, Ala. Work on the program will extend through July of next year.

The task will consist of analysis, design, construction, and wind tunnel test of panel configurations stipulated by MSFC from the standpoint of panel flutter and associated vibratory stresses.

Little reliable information is

(Continued on Page 2)

SENIOR EUROPEAN REP FOR GD NAMED BY ROGER LEWIS

Roger Lewis, president of General Dynamics Corporation, has announced appointment of Gen. Joe W. Kelly, USAF (Ret.) as senior European representative for the Corporation. His headquarters will be in Paris.

General Kelly

General Kelly retired from the United States Air Forces last July after 32 years of continuous service with the Air Force and the Army Air Corps.

Immediately prior to joining General Dynamics, General Kelly had been commander of the USAF Military Air Transport Service since 1960.

He graduated from the United States Military Academy at West Point in 1932. After completing flying school, he was assigned to the 94th Pursuit Squadron, and during the 30s he was one of the select group of air mail pilots for the Army Air Corps.

His major posts have included, successively: member of the Military Mission to Chile; commander of the 386th Bomb Group (Medium) of the Ninth Air Force in Europe during World War II; director of aviation at West Point; chief of Plans and Operations division of the Air War College; commander of the Far East Air Forces Bomber Command (Strategic Air Force); director of Legislative Liaison with the office of the Secretary of the Air Force; commander of the Air Proving Ground Center (Eglin AFB, Florida). He has been a full general since June 1963.

Sales, Earnings Improve in '64

Sales and earnings of General Dynamics Corporation for the three months and the six months ended June 30, 1964, continued to show improvement over comparable periods of the year before, Roger Lewis, president, announced this month.

New orders received during the first six months of this year were substantially larger than those in the first half of 1963. The improvement in sales, earnings, and orders is reflected in all major areas of the Corporation's activities, including aircraft, missiles, space systems, electronics, nuclear and marine activities, building materials, minerals and compressed gases.

For the six months ended June 30, 1964, sales were $759,546,000 compared with $706,179,000 in the first half of the prior year.

Consolidated net income of General Dynamics Corporation and subsidiaries came to $18,610,000, or $1.62 per common share, after provision for dividends on the preference stock equivalent to 24 cents per share of common stock.

During the first half of 1963, no provision for income tax was required on the Corporation's earnings due to the carry forward of the 1961 loss. This year the Corporation is paying income tax on all its earnings. For purposes of comparison, 1963 earnings for the six-month and three-month periods have been restated to include full provision for taxes.

In the first six months of 1963, net income was $14,535,000 or $1.45 per common share, when no provision for preference dividends was required.

For the three months ended June 30, 1964, sales were $381,815,000, compared with $356,517,000 in the comparable quarter of 1963.

Consolidated net income was $11,320,000, or $1.01 per common share after provision for preference dividends equivalent to 12 cents per common share.

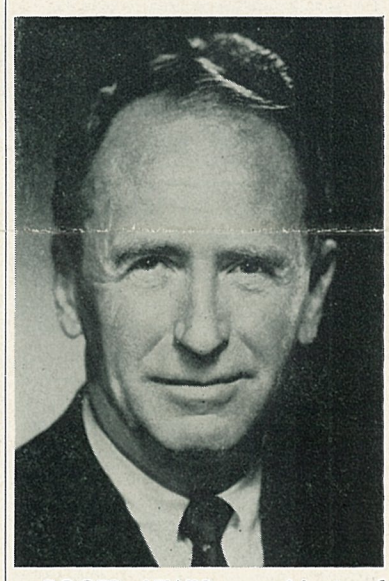
In the second quarter of 1963, net income was $9,631,000, or 96 cents per common share, with no provision for preference dividends required.

At June 30, 1964, working capital was $211,000,000, an increase of 33% over a year earlier.

Lewis also announced that the Corporation has elected to exercise a pre-payment option in its long-term debt agreements. The company's ability to take this action, he said, reflects the strong improvement in its cash position and will result in a further reduction in interest charges.

During August, an advance payment of $25,000,000 will be made. That will reduce total long-term debt to approximately $99,000,000 — the lowest it has been since 1958. This marks the second time in less than a year that a substantial reduction in the company's long-term debt will have been accomplished.

In improving operating results, Lewis said the company has also been able to effect substantial savings for its main customer, the United States Government.



ROGER LEWIS, president of General Dynamics Corporation, reports that new orders are above similar period in 1963.

When President Johnson and Secretary of Defense McNamara asked all defense contractors to help reduce defense costs, Lewis noted, General Dynamics had been able to reply that during 1963 it had effected savings, already reflected in lower costs to our customers, of approximately $60,000,000. In the first half of this year alone, he added, this continued program has resulted in savings or cost avoidance of equal magnitude.

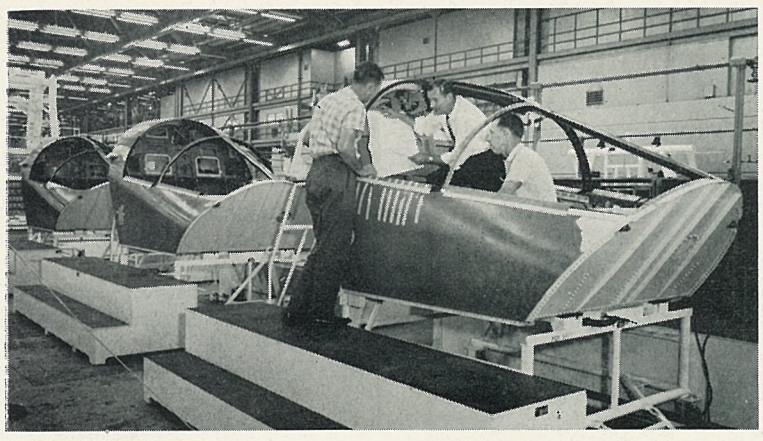
In addition, the Air Force has recently announced that the 100% reliability achieved by Atlas boosters in 14 consecutive space launches (for both the Air Force and the National Aeronautics and Space Administration) during the Government's 1964 fiscal year (ended June 30) had resulted in a total cost avoidance to the Government of approximately $81,000,000.

Labor Day Holiday Slated For Sept. 7

Labor Day holiday will be observed by General Dynamics people on Monday, Sept. 7.

Only necessary security and maintenance people will be on duty.

Everyone will report to work at regular hours the following day, Tuesday.



CREW COMPARTMENT — H. T. Cain Jr., center, assistant foreman, checks out F-111 crew module installation with T. O. Jennings, left, and A. J. Larson. All are in GD/Fort Worth Dept. 55 (crew module primary).

Unique Escape System Involves Crew Modules

Crew modules — or compartments — for the F-111 are being completely equipped on an "assembly-line" basis in Dept. 55 (crew module primary) at GD/Fort Worth.

First of the revolutionary crew units, which permit a new and unique crew-escape system, arrived from McDonnell Aircraft Corp. recently. McDonnell is one of the major F-111 subcontractors.

"We're installing all systems and furnishings in Dept. 55," said J. E. Topliff, Dept. 54 general foreman. "When the module leaves our bailiwick, it'll be a 'flying' article."

This means the module will be ready for installation and checkout when completed and shipped to aircraft mating.

The crew module was delivered on schedule to GD/Fort Worth after 19 months of "intensive design and development effort by McDonnell."

Crew escape from the F-111 is accomplished by igniting a pyrotechnic system which "cuts" the entire cockpit section away from the fuselage in less than 10 milliseconds. Once the structure is cut, a 35,000-pound nominal thrust rocket motor separates the crew module from the aircraft.

Parts of the fuselage and wing remain attached to the capsule, providing in-flight stability during ejection and deceleration.

The crew will be able to control the ejection sequence manually, but normally the entire operation will be automatic with the pulling of the escape system handle by either of the men.

During separation and descent, the pod's emergency support systems will provide life-supporting oxygen to the crew. The pod will automatically dispense radar chaff and switch on an emergency radio and flashing beacon to aid in quick retrieval of downed airmen.

Log Book Entries

Service Emblems

CONVAIR

Service emblems due during the period August 16 through August 31.

Twenty-five-year: Dept. 6-63, J. E. Quigley; Dept. 401-5, C. E. Jones.

Twenty-year: Dept. 6-31, L. E. Cook, J. D. Jackson; Dept. 25-2, Alma W. Marshall; Dept. 131, Anna T. Cunnion; Dept. 400-1, George Radici.

Fifteen-year: Dept. 6-05, A. E. Nussbaumer; Dept. 14-4, Louise M. Weeber; Dept. 27-1, R. L. Schahn; Dept. 48, R. R. Chilcote, H. C. Stephens; Dept. 97-3, O. V. Pratt.

Ten-year: Dept. 3-1, Elizabeth C. Patterson; Dept. 48-78, G. G. Bergant.

ELECTRONICS

Fifteen-year: Dept. 71-00, D. R. Miller.

Ten-year: Dept. 53-00, D. A. Graybill.

Awards

CONVAIR

Employee Suggestion Awards approved for periods ending August 7 and 14.

Dept. 14, F. L. Dewey, $32; F. A. Rosso, $68.30.

Dept. 91, B. J. Lyons, $148.80.

Dept. 101, Leo Budzynski, $10.

Dept. 119, B. F. Armas, $10; C. H. Fenstermacher (three awards), $148.10, $32.60, $17.40.

Dept. 149, D. W. Kennedy, $30.30.

Dept. 400, G. Rankin, $158.85.

Retirements

CONVAIR

BENNETT—Vennie D., Dept. 101. Seniority date Aug. 13, 1948, retirement effective May 27.

BIGLER—Robert E., Dept. 6. Seniority date April 17, 1941, retirement effective June 30.

CHEFFEY—Arthur E., Dept. 115. Seniority date Oct. 10, 1955, retirement effective May 2.

HUDSON—John M., Dept. 6. Seniority date July 18, 1933, retirement effective July 14.

O'NEAL—Daniel G., Dept. 133. Seniority date June 19, 1947, retirement effective July 31.

POWELL—Victoria A., Dept. 48-01. Seniority date Sept. 27, 1951, retirement effective July 31.

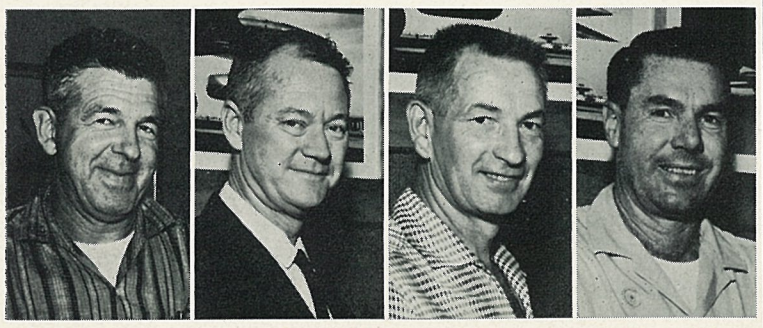
RINDER—Henrietta S., Dept. 171. Seniority date Feb. 19, 1951, retirement effective July 31.

THOMPSON—George F., Dept. 31. Seniority date July 11, 1949, retirement effective July 31.

TODD—Jacob W., Dept. 148. Seniority date May 31, 1950, retirement effective July 27.

VOGEL—Roy E., Dept. 42. Seniority date Sept. 11, 1947, retirement effective July 31.

WILLS—Kenneth S., Dept. 101. Seniority date July 30, 1948, retirement effective June 7.



Wearing new 25-year service emblems are GD/Convair men W. J. Gibson, Dept. 141, left, F. D. Slavens, Dept. 400-1, H. S. Jensen, Dept. 401-2, C. P. McVay, Dept. 171.

General Dynamics NEWS

Published by General Dynamics Corporation, One Rockefeller Plaza, New York, N. Y. 10020; with editorial headquarters at 3302 Pacific Highway, San Diego, Calif. 92112, P.O. Box 1950, telephone 296-6611, ext. 1071. Logan Jenkins, editor-in-chief.

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* * *

Affiliated editions of General Dynamics NEWS are published in Rochester, N. Y., covering GD/Electronics and Stromberg-Carlson, editorial offices, 100 Carlson Road, HUbbard 2-2200, ext. 2555. Fred E. Voss, editor; and at Groton, Conn., covering GD/Electric Boat, editorial offices at Groton, HIlltop 5-4321, ext. 300 and 513, Joseph Tracey, editor.

Convair Working On NASA Study Of Vibration

(Continued from Page 1)

available to substantiate mathematical theories of panel flutter at different speeds and under various stress conditions. As part of the study, extensive wind tunnel tests will be made to establish the manner and extent in which vibration of isolated panels occurs, whether an instability actually exists, and, if so, whether the flutter could prove catastrophic.

The first program phase will consist of development of the analytical technique, with preliminary testing of panels at subsonic speeds to verify the validity of the technique. Phase two will further substantiate tests and data point collection at transonic and supersonic speeds.

Convair engineers first applied their mathematical approach to flutter velocities of panels during design of the Little Joe II launch vehicle being built for NASA for suborbital testing of unmanned Apollo spacecraft. No surface flutter was experienced during the first two test firings.

The project will be under the general cognizance of the Convair manager of NASA programs. Convair dynamics engineers reporting to K. G. Hart will be directly responsible for carrying out the study. Gordon L. Getline, design specialist, is project leader.

Dynamics laboratory will have responsibility for installation and calibration of instrumentation on the test panels, and data reduction. The panels will be designed by the wind tunnel model design group and fabricated by the engineering prototype facility.

GD/E Future Topic For Mgt. Club Talk

Future of GD/Electronics facilities in San Diego will be outlined by John L. Lombardo, former GD/E-San Diego general manager and now executive vice president of Stromberg-Carlson, when he talks before the GD/E Management Club tomorrow evening.

All Management Club members and eligible non-members are invited to attend the Aug. 27 session at Catamaran Hotel, Mission Blvd.

Social hour starts at 5:30 p.m.; dinner follows at 6:30.

Lombardo's report and forecast of GD plans for GD/Electronics in San Diego is scheduled for 7:30 p.m.

Dinner price is $3.50 each with tickets available from departmental representatives.

Cash Value Life Deadline Nearing

Convair and GD/Electronics eligible people have until next Tuesday (Sept. 1) to sign for the new cash value life insurance without a physical examination.

The supplemental individual insurance is available at group rates to supervisory and non-represented flat-salaried personnel. It provides permanent paid-up protection at retirement or termination.

Premiums are based on amount of insurance and age of subscriber. Insurance is available in units of $5,000, to a maximum of $30,000, dependent upon each person's salary bracket.

Forms may be filled out at Convair or GD/E employee services.

OIL AND SAND SEAL CONCRETE SURFACES

All asphaltic concrete surfaces in Convair Plant 1 were resurfaced this month. A coating of oil and 400 tons of sand were used to seal all of the outside areas. When the sand was swept up last week, about 200 tons were reclaimed. The rest had soaked into the surfaces.

GD/E Picnic Set For Sat., Aug. 29

GD/Electronics families will head for the hills on their first all GD/E picnic this coming Saturday, Aug. 29.

An activity-loaded day has been planned at Pine Crest, the CRA mountain resort on Hwy. 79 near Julian. All families will gather by 11 a.m. with their own picnic lunches. Games and sports for grown-ups and children are scheduled throughout the afternoon.

Coffee, soft drinks, beer, ice cream, and popsicles will be furnished.

There will be a choice of badminton, ping pong, horseshoes, golf chip shots for the energetic; bingo and horse race games for those who would rather take it sitting down.

Treasure hunts and foot races are planned for boys and girls.

Prizes will be awarded for all events and there will be other valuable awards in the raffle.

GD/E Operations and GD/E Material "slow-pitch" softball teams will play an exhibition game.

Ernie Paul, committee chairman, is assisted by Jack Knight, Tom Conley, F. B. Wagner, Harold Palmer, Loretta Boyd, Jackie Blue; Shirley Reeves, Kelly Patton, Ada Buss, Fred Walz, Ken Farnsworth, Chuck Barber, Jim Wheeler, B. A. Ledbetter, George Elmore, Fred Nuzzo, Ray Sandoval, Ray Mattis, and Wally Forster.

Tickets at $1 per family still are on sale by committee members and departmental representatives.

CLUB HONORS — In upper shot, Clarence Strand (right), experimental foreman in charge of Little Joe II production, receives Mug of Month from W. D. Reed, Convair manager of manufacturing. Four top savers (lower photo) were rewarded for CIPs at August Management club meeting: from left, H. M. Woodard and H. A. Mohr, joint March MacSave-it winners; Stan Penziul, April MacSave-it; L. W. Klingenmeier, June trophy holder. At far right, H. P. Williams, manager of value control, holds trophies for May MacSave-it, E. R. Hockert, and July winner, L. W. Stamper, who were not present.

Six Earn MacSave-it Awards For Ideas Worth $70,000

Six men who have saved the company $70,000 through their Cost Improvement Proposals received MacSave-it trophies at last week's GD/Convair Management Club meeting.

Awards for the months from March through July were handed out by H. P. Williams, value control manager, to bring the club's MacSave-it honors up to date.

H. A. Mohr, Dept. 101 assistant foreman, and H. M. Woodard, factory specialist now in Dept. 115, teamed to win the March trophy with two joint CIPs. Both of their ideas put the blanking method to use cut manhours and save money on operations formerly done by hand. One, suggesting the blanking of gaskets, was credited with $14,348 in savings. The other resulted in blanking strux for C-141 leading edge ribs and saved $6,500.

Stan Penziul, Dept. 115 assistant foreman, was winner of the April award by his CIP to combine operations in profiling. The new method saves Convair $7,498.

The May trophy went to E. R. Hockert, senior buyer in Dept. 34, who realized $12,097 for the division by his suggestion that surplus test equipment be updated and sold.

L. W. Klingenmeier, also of Dept. 34, came up with an idea which resulted in an approved second source of supply for C-141 bolts which will save $7,581 on 114 ship sets. He received the June trophy.

The July trophy was awarded L. W. Stamper, Dept. 119 assistant foreman. His CIP, worth $19,699, changed the type of nylon film to bag C-141 leading edge parts, and other components exposed to high temperature or long cure cycles. He found that a cheaper type of material could be used satisfactorily.

Three ESs Approved Within Single Week

C. H. Fenstermacher of Convair Dept. 19 (metalbond fabrication and assembly) hit the jackpot when three of his Employee Suggestions were approved in one week this month to put nearly $200 extra money in his pocket.

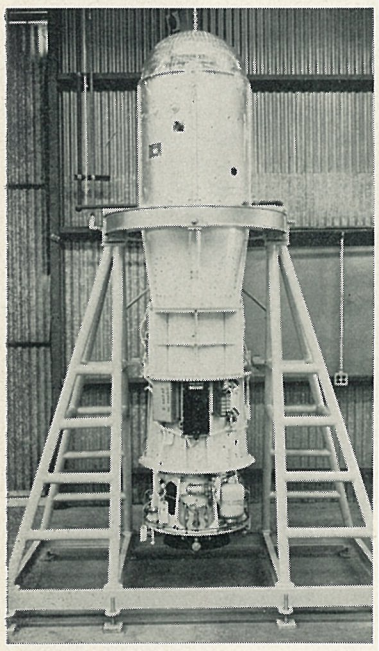
All of Fenstermacher's suggestions dealt with bonding of the C-141 stainless steel erosion shield to save the company $1,981 by using less expensive materials. The ESs paid off at $148.10, $32.60, and $17.40.

Satar Newest Model Of Space Hitch-Hikers

GD/Astronautics' fleet of "hitch-hiking" space vehicles will be augmented by a bright new model later this year when Satar makes its first flight.

Satar (Satellite for Aerospace Research) is being developed for the Air Force Office of Aerospace Research (OAR). It is an outgrowth of Astro's successful scientific pod program.

Dating back to 1961, the scientific pod program has afforded the Air Force and the scientific



SATAR — Entire unit is shown here, satellite and propulsion unit attached.

community rare opportunities to carry out space research at the lowest possible cost. This was due primarily to the ability of the pods to ride into space on launch vehicles, like Atlas, sent on other missions but with additional payload capability.

Forty-four scientific pods have flown to date. There were 19 standard (non-recoverable) pods, 23 recoverable pods and two infrared probes. Most flew on Atlas vehicles. Three vehicles each carried two pods aloft.

Those flown were non-orbital types which more or less followed the trajectory of their "parent" launch vehicle.

Now Satar, which boasts its own propulsion system to place it in orbit, represents the next important step in this economical program. Satar is capable of three basic missions—high speed re-entry, 4,700 nautical mile space probes and scientific satellites.

In its initial flight later this year Satar is slated to carry scientific experiments into orbit, riding the first portion of its journey aboard an Atlas.

Composed of a satellite and propulsion module, Satar will nestle aboard Atlas in a protective cradle during ascent, eject from the cradle and coast upward to ballistic apogee. During this phase, 12 hydrogen-peroxide powered motors will provide necessary pitch, yaw and roll maneuvers for correct orbit injection.

At ballistic apogee, Satar's solid-fuel motor will fire to place it in orbit. Once in orbit, the satellite separates from the propulsion module and proceeds on its space-probing mission.

Throughout its research and development on Satar, Astronautics has kept in mind the need for a space vehicle capable of carrying out experiments at the lowest possible cost. Coupled with this basic aim has been a design goal of a system that could incorporate many experiments without significant changes in the structure or support subsystems of Satar.

Following these objectives, Astro has selected for Satar a number of qualified and flight-proven components.

Late last month Satar was introduced to the public for the first time with news media representatives invited to Astro's main plant.

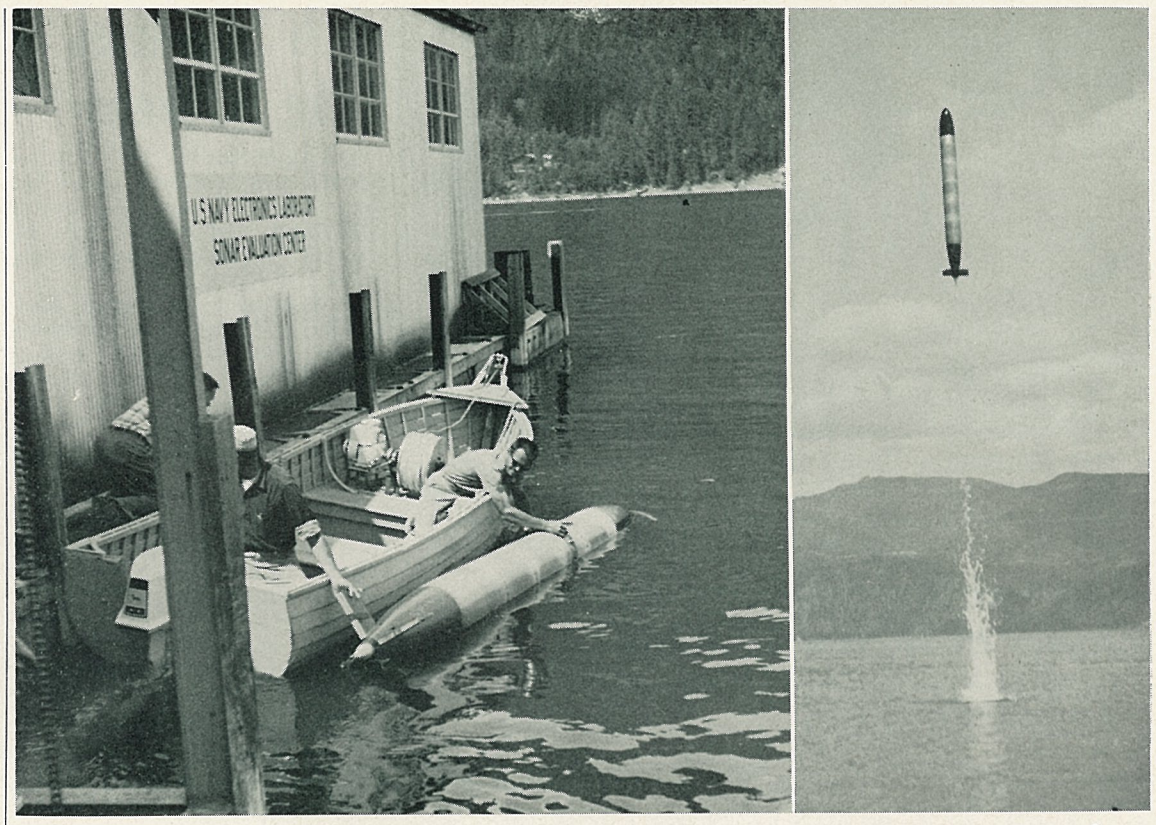
Shortly thereafter, Satar was airlifted to Cape Kennedy to prepare for its pending flight date. Air Force and Astronautics specialists are prepping it for a launch date at Complex 11.

Although qualified and flight-proven components were selected for Satar, Astro has carried out an extensive test program, first on components, then on the entire system. There were ejection tests, cradle tests, vibration tests and numerous engineering qualifications.

Climaxing the program was a final dynamic stability test effort. A prototype of the first flight vehicle was placed on a unique fixture with an air bearing base (simulating friction-free space conditions). In the program Satar was put through a full spectrum of checks, complete with firings of hydrogen-peroxide attitude control motors.

Playing key roles in this final effort were Don Harris, test conductor; Bal Agamata, Stan Maki, Bob Wingfield, Larry Smith, M. T. Raaberg, Ed Horbett, Walt Mitton and many others.

L. E. Ottem is Astro's assistant program director and P. V. Smith is engineering manager. Both report to Don Prim who heads electronic programs department, responsible for Satar development.



LAKE "SHOT" — Capsule-shaped test vehicle topped with Convair-developed sonar dome shoots high out of water (at right) from 500-ft. below surface in recent deep-water tests at Lake Pend Oreille, Idaho. At left, Navy technicians bring buoyant vehicle bearing dome alongside barge for tow to center of lake. Convair developed new-type dome over last year under NEL contract.

Astro Prints Chosen For National Honor

Professional Photographers of America, Inc. have again recognized the work of GD/Astronautics still photographers.

Astro lensmen submitted 24 prints, with 10 of them being selected to hang in the group's 73rd Exposition of Professional Photography in Chicago.

Four of the prints were the work of Keith Adams, with Jack Stevens, Frank Tercey and David Mathias each contributing two prints.

In addition, Adams was recognized by this national group as a Master Photographer, one of two in San Diego.

Still another singular honor has accrued to Jack Stevens of the Astro group. One of his portraits has been selected for inclusion in the exclusive PPA loan collection, to be exhibited throughout the U. S. and Europe.

Capsule Shot From 500 ft. Depth Proves Design of New Sonar Dome

A yellow and black capsule breaking the waters of an Idaho lake late last month proved out over a year of development work by GD/Convair dynamics engineers on a sonar dome which is acoustically "invisible."

Tests at the NEL Sonar Evaluation Center at Lake Pend Oreille climaxed months of design and test effort on a sonar dome for high-speed sonar systems, under a contract from Navy Electronics Laboratory. Testing was administered jointly by NEL, Convair, and Naval Ordnance Test Station, Pasadena, Calif.

Contract requirements called for development of a sonar dome for high-speed systems, with improved acoustic properties and low sensitivity to noise induced by hydrodynamic flow.

Evaluation of noise data recorded during the lake tests is presently under way, said Gordon Getline, Convair's project engineer on the program.

C. N. Miller was NEL project supervisor throughout the program and C. Nisewanger of NOTS directed the testing.

The dome is constructed of orange peel sections of ABS, a high-strength styrene, selected for its excellent acoustical properties in water. The interior is an open-face honeycomb type of gridwork to provide the required stiffness and also to take advantage of pressure correlation effects in the hydrodynamic boundary layer. The outer surface is smooth and streamlined. The dome sections are fusion-bonded and topped with a nose cap.

The sonar dome was installed on a buoyancy-propelled, instrumented test vehicle, provided by NOTS, for the deep water checkouts. The test vehicle was pulled by cable to a 500-foot depth and released. The vehicle's own buoyancy propelled it back to the surface.

It sped back to the surface at a maximum velocity of 36 knots, and shot about 50 feet into the air before dropping back to rest on the lake's surface. Top speed was reached about 150 feet from release depth.

Initial tests were run last November at California Institute of Technology's high-speed water tunnel in Pasadena to evaluate structural configurations as a basis for final dome design.

The current program will be concluded within two months, after final data evaluation. The present dome development stemmed from research and design of a similar-type dome for a different application under a Navy BUWEPS contract some three years ago. Getline also directed the hydroacoustic development of that body.

Further work in the field is anticipated on the basis of the successful conclusion of the NEL program.

Sacktime

GD/Astro Son Spending Month In Bed as Part of Space Study

A GD/Astronautics son is making his own contribution to the nation's space effort in a rather unusual fashion—spending a month in bed!

He is Kenneth W. Jeremiah, 22, son of Astro's K. W. Jeremiah, assistant program director—Centaur.

A psychology major (in his senior year) at the University of Southern California, Jeremiah is one of 14 volunteers taking part in his university's School of Medicine project known as Operation Sacktime. He is the lone married (for six months) student volunteer.

Operation Sacktime is studying the ability of astronauts to endure lengthy periods of weightlessness in space. Volunteers are spending 30 days in a prone position in bed, after which they will be placed aboard the school's centrifuge and whirled at eight times the force of gravity prior to extensive testing.

Before entering their beds, the volunteers went through long periods of physical conditioning, plus other centrifuge rides.

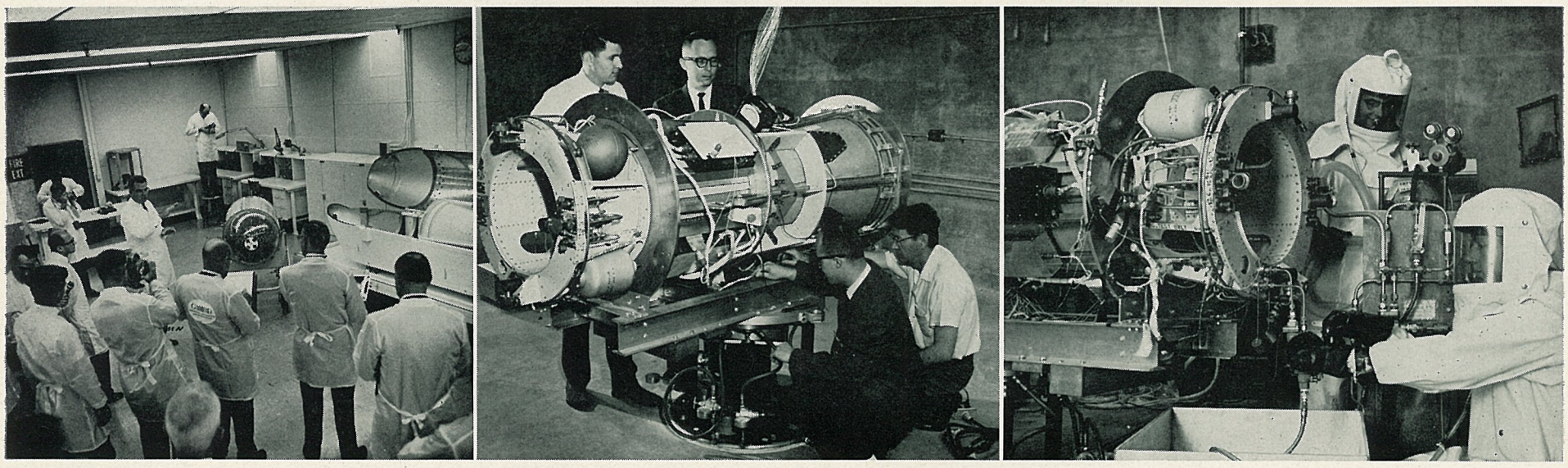
Operation Sacktime participants can now talk, read, listen to radio and watch television, but are allowed no visitors.

Annual Vultee Club Reunion Is Sept. 19

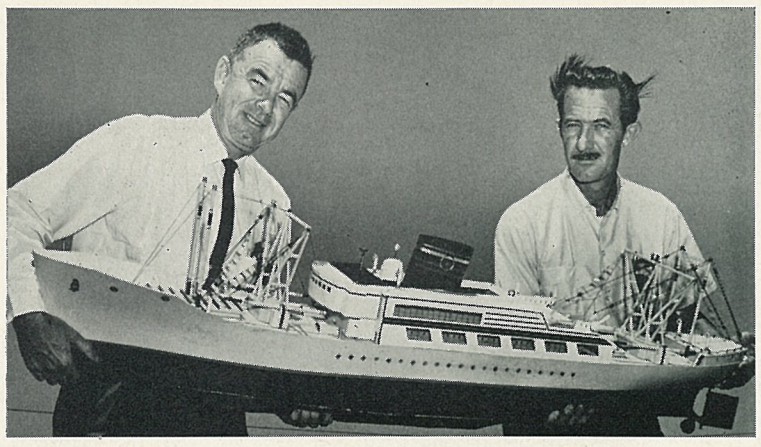
Vultee Field old-timers will gather for their 17th annual Vultee Club reunion next month, Sept. 19, at Disneyland Hotel.

More than 600 former employees of the Vultee Aircraft Co., Downey, Calif., are expected to turn out for the yearly event. Altogether, there are 800 active Vultee Club members, although any former Vultee employee is eligible to attend the meetings.

Cost of the dinner and meeting is $5. Reservations may be made be writing: Vultee Club, 11010 S. Garfield Place, South Gate, Calif.



UNVEILED — GD/Astro's Satar was shown to press recently and Don Prim, electronic programs director, explains satellite portion in photo at left. At right, Larry Smith and Bob Wingfield, wearing hydrogen-peroxide protective clothing, go through fueling operations. In center picture Ed Horbett and Jim Rice, kneeling, and Don Harris and Vic Andreone conduct test prototype. "Hitch-hiking" satellite is at Cape Kennedy being readied for launch later this year.



SHIP BUILDERS — Gordon Houvener, left, and Chuck Ogle display five-foot model "Sea Fox." Ogle built fiber glass hull, which Houvener finished, adding superstructure, steam engine and radio control. Merchantman operates on Mission Bay Park model basin.

Model of Merchant Freighter Cruises at Honest 10 Knots

The "Sea Fox" is a merchantman of modern design laid up on a modified C-3 hull, home-ported in San Diego and operated on super-heated steam, boasts a cruising rate of about 10 knots. Loaded displacement: 42 pounds.

"Sea Fox" is a five-foot model (5/32-in. to 1 ft.), produced by Gordon Houvener, GD/Astro Dept. 558-5, during several hundred leisure-time hours over the past year.

It all started when Chuck Ogle, Dept. 290, ARA commissioner and inveterate modeler, turned out the scale model fiber glass (three layers) hull.

With this as inspiration, Houvener obtained English castings and machined a two-cylinder, double-acting ¾x¾ steam engine (Stuart "Double Ten"); then designed and built an all-copper boiler with five external water tubes and super-heater. An old camp stove was modified to provide a burner.

Engine and boiler alone required some 300 manhours. More time was spent in fitting rudder and single screw, building and detailing the superstructure, and more recently, in dropping the keel to lower the center of gravity.

To date, "Sea Fox" has spent about 50 hours in the water on Mission Bay Park's model basin. The power plant can generate 50 psi super-heated steam in eight minutes, and permits a 15-minute cruise using 40 psi constant pressure.

A radio control unit provides "ship-to-shore" communication (rudder action only) up to a one-mile range during operations.

Ogle has retained the hull mold and will lend it to other potential "sea captains," or consider building other hulls to order.

Technical Writing Courses Offered

Two technical writing courses will be open to all General Dynamics people during the fall semester through sponsorship of GD/Convair educational services and San Diego Junior Colleges.

Technical Writing 5, technical proposal writing, and Technical Writing 6, technical report writing, both carry 3 units of college credit toward the Certificate of Proficiency in Technical Writing under the San Diego Junior Colleges program. They will be taught in-plant by Louie Henderson.

Tech Writing 5 will be Tuesdays, beginning Sept. 15, from 5-8 p.m., Plant 1, Bldg. 14, Room 8. Tech Writing 6 starts Sept. 16 and will be held each Wednesday at the same time and place.

Prerequisites for both courses are Tech Writing 1, 2, 3, and 4, or permission of the instructor.

Enrollment may be made through L. W. Turner, ext. 491, Plant 1, or by submitting forms now on company bulletin boards.

GD/Astro Daughters Appear in 'King and I'

Three Astro daughters are now "veteran troopers" when it comes to musical comedy.

Rose Maria, 6, and Mary Jo Bakich, 9, whose father, George, is in Dept. 963-2, now appear as Siamese youngsters in "The King and I" at Circle Arts. Little Rose Maria, and big sister Anne Marie, 13, are also preparing for parts in Starlight's "Sound of Music."

Ann Marie started the parade to the footlights as a result of dancing lessons, and the younger girls joined in when she began to audition for roles. Two years ago, the two older Bakich girls appeared in Starlight's "Wizard of Oz."

ARA-CRA GARDENERS WIN DAHLIA SHOWS

Dahlia exhibitors from the ARA-CRA Garden Club garnered at least 10 trophies and 60 ribbons with their prize blooms at two large Southern California shows this month.

LaVonne (Convair Dept. 2-0) and Charles Splinter (Astro Dept. 759) took amateur sweepstakes at both the Inglewood Dahlia Show the weekend of Aug. 8-9 and at the Santa Ana Dahlia Show the following week. Mr. and Mrs. Al Hornby (he's Astro Dept. 972) swept sweepstakes in the advanced novice section at the Santa Ana show. Sweepstakes is based on overall points from first, second, third-place standings.

The Splinters also had best bloom in the amateur division at Inglewood and best large bloom for amateurs at Santa Ana. The Hornbys had best medium bloom at Inglewood.

Others among the 15 or so Garden Club displayers winning top honors at Inglewood were Arnold Carroll (Astro Dept. 142), best bloom; Clayton Finley (husband of Evelyn, Convair Dept. 14-4), best large bloom.

Commissioner Everett Henderson was one of the judges at both shows, although did not take part in evaluation of any divisions in which Garden Club members displayed.

Members will meet next Wednesday (Sept. 2) to see movies and slides taken by Carol and Charles Ulrey during their trip to South America.

Meeting will be at 7:30 p.m. in the Floral Association Bldg., Balboa Park.

Value Engineers To Hold Workshop

San Diego Chapter of Society of American Value Engineers will hold a workshop session at the first fall meeting Sept. 1, in the Mission Room of Mission Valley Inn.

"Develop Your Creative Thinking" will be the subject of Glen D. Hart, chief corporate value engineer for Aerojet General Corp. Hart is a pioneer in the value engineering field. He assisted Larry Miles, known as the father of the VE concept, during development of first value engineering principles at General Electric Co.

Dinner tickets are $3.75, including tax.

They may be purchased from Frank Urban, Astro ext. 1083; Wayne Turner, Convair ext. 2491; W. D. Garrett, GD/E Plant 1, ext. 2910; Roland Mansell, GD/E Plant 2, ext. 36.

Club Schedules Lake Weekend

An invitation to an "Autumn Weekend at Big Bear Lake" has been issued to all GD/Convair, GD/Astro and GD/E folk by General Dynamics Ice Skating Club.

The event is scheduled Sept. 25, 26, 27 at Big Bear's Wawona Lodge, site of similar outings over the past six years. Accommodations include hotel room with private bath for two to five persons, and housekeeping cabins for family groups.

Weekend activities will include swimming in Wawona's pool, hiking, horseback riding, cycling, ice skating and an informal dance on Saturday evening.

Per person price for the package of two nights' lodging and meals (breakfasts, poolside snack for Saturday lunch, and Saturday evening barbecue) is $12 per person with children under 8 years at half price.

Participants will arrange their own transportation.

Reservations (limited to a total of 100 persons) are being accepted at employee services offices at Plants 1, 71 and 19, with full price payable at time of sign-up. No refunds will be issued after Sept. 18.

Additional information is available from Barbara Gilliland GD/Astro, ext. 4041.

Fallbrook Shooter Wins CRA Gun Event

Bill Shrode of Fallbrook shot a 98 to win Class A division of the 16-yd. event at CRA Gun Club's last ATA registered trapshoot held Aug. 9 at Gillespie Field Range.

Jim Prewitt of Spring Valley took Class B with a 93. George Skurla broke a three-way tie for first in Class C after scoring 25 in the shoot-off. Skurla, Art Berry of Lemon Grove and Ellis Rhodes of San Diego all shot 94s in first round. Class D was won by Lee Myer of Lemon Grove with 89.

All 16-yd. winners won silver service pitchers as prizes.

Duke Higginbotham of National City was first in the handicap with a 93 and was rewarded with a silver service lazy Suzan.

W. U. Gatterman of Astro won the doubles and covered casserole prize with an 84.

Next big open Gun Club event will be the annual merchandise shoot this coming Sunday, Aug. 30.

GD/E and GD/Astro Men to Instruct

Everett A. Lindem of GD/Astronautics educational services and M. M. Reeder, GD/Electronics value control coordinator, will instruct value engineering courses this fall at the Mesa Campus of San Diego Junior Colleges.

The value engineering training is approved by the Society of American Value Engineers and will cover the same material presented in General Dynamics value vs. cost training courses.

Lindem will instruct a Monday night class, 6:30-9:30 p.m., and Reeder a Thursday evening class at the same time. Both will be held in Room MK-106 at the Mesa location.

Enrollment may be made at the SD Junior Colleges office, 835 Twelfth Ave., from now through Sept. 4, 5-8 p.m.

Weight Engineers Will Meet Aug. 28

Next meeting of San Diego chapter, Society of Aeronautical Weight Engineers (SAWE), will be held Friday (Aug. 28) at Harold's Fifth Ave. Restaurant, Fifth and Laurel.

Cocktails (6:30 p.m.), dinner (7 p.m.) and a business session will precede a talk by Dr. D. G. Mitton, vice president of chemical operations, Straza Industries.

New Salvage Hours Set For GD/Astro

New Saturday operating schedule for employee sales at GD/Astro salvage yard has been announced covering the balance of the year.

This Saturday (Aug. 29), both the GD/Astro yard (inside Gate 10, Plant 71), and the GD/Convair yard (adjacent to Gate 5, Plant 1) will be open during morning hours. Both yards will be closed Sept. 5, due to the Labor Day weekend.

After that, yards will open on alternate Saturday mornings. Astro sales dates are Aug. 29, Sept. 19, Oct. 3, 17 and 31, Nov. 14 and 28, Dec. 12. Convair sales will be held Aug. 29, Sept. 12 and 26, Oct. 10 and 24, Nov. 7 and 21, Dec. 5 and 19.

Home-Built Plane Lives up to Hopes

It flies! And both builder and his "boss" are happy about it.

"Little K," home-built bi-plane designed and constructed by A. A. Kovschak, Astro Dept. 972-0, **(GD/NEWS, Jan. 15)**, first took to the air from Ramona Airport July 17, and has operated successfully each weekend since.

Kovschak has been working on the plane for nearly three years as a hobby.

Nothing could have made Kovschak's supervisor, W. C. "Bill" Taylor, also Dept. 972-0, happier. A veteran flight instructor, Taylor was "test pilot" for "Little K's" first hop.

Society For Quality Control Will Meet

First fall meeting of the San Diego Section of American Society for Quality Control will be Sept. 14 at the Bronze Room restaurant in La Mesa.

Phil Kline, director of reliability of Aerospace Corp., will speak on testing requirements that produce ultimate reliability of product.

W. J. Martin, GD/Convair director of reliability, will moderate.

Dinner tickets are available through boosters at Astro, Convair, and GD/E.

GD/Astro Son Earns Fleet Scholarship

Earl H. Handwerker, 18, son of GD/Astro's Ben Handwerker, Dept. 405, is recipient of a four-year Reuben Fleet Foundation scholarship for outstanding work in Jr. Achievement.

Young Handwerker was president of "Brite-Lite Corp.," Kiwanis-sponsored first Jr. Achievement effort in Escondido. A life member of California Scholarship Federation, Earl will enter Columbia University next month as a pre-law major.

Noirez Completes Reliability Course

Max Noirez (Dept. 145-2) of GD/Astro recently received a certificate indicating successful completion of a 1964 Reliability and Statistics Course at UCLA.

The program was operated by the UCLA Department of Engineering at Los Angeles.

"FLIP" DARR NOW HEAD SWIM COACH

GD/Astro son Ralph P. "Flip" Darr, son of Francys Darr, Dept. 401-1, has been named head swim coach and trainer at Copley YMCA. Well known in state swimming circles, Darr set a record in the 1953 Venice, Calif., rough water event, and was a tri-winner representing the Navy in All-Service Championships.

When telephoning, never mind the weather. Get to the point. Telephone time costs money.

Astro Notes Plan Doubling Membership

A campaign by Astro Notes, ARA choral group, to double its membership in preparation for the performance-packed season up-coming, will kick off at an open meeting and rehearsal, 7:30 p.m., Sept. 14 in ARA Clubhouse.

The group is open to employees of all General Dynamics divisions in the San Diego area, and members of their families over 18 years of age. Prospective members are needed in all voice ranges. There are no "tryouts" and no reading knowledge of music is required.

Founded seven years ago as an outlet for GD folk who enjoy relaxation and sociability of group singing, Astro Notes has since become well-known throughout the community. The group appears regularly at various social clubs and for meetings of ARA activities, and during the Christmas season is welcomed at area hospitals for carolling programs.

Projected for the near future is a formal one-hour concert for GD families.

Walt Miner is ARA commissioner; Jim Pate, president; Jim Rogers, director; and Helen Pittman, accompanist.

Repertoire ranges from jazz and humorous numbers through "pops" and light classics. Practice sessions are held each Monday evening in ARA Clubhouse, and frequent social events are scheduled.

Feature spot on many programs is taken by Astro Notes' Barbershop Quartet. Soloists are Leo Bray of GD/Electronics, and Miner. This aggregation will seek a second tenor lead during the current "recruiting drive."

Astro and Gen. Atomic Men on Cal. Faculty

Fourteen Astronautics and General Atomic men are listed as members of the faculty of University of California Extension during the fall semester.

Astronautics men and subjects they will teach are: Raymond A. Elliott, "Introduction to Computing Systems"; James F. Haskins, "Advanced Engineering Mathematics"; Frank H. King, "Principles and Applications of Value Analysis"; Cyril H. Nute, "Advanced Engineering Mathematics," "Statistical Theory of Communication," and a section of the discussion program, "Contemporary Moral Issues"; Douglas L. Platt, "Fundamentals of PERT Planning and Control," and "Advanced PERT"; Theodore Rubin, "Probability and Statistics"; Robert W. Swanson, "Data Processing and Computer Programming"; Allan N. Wilson, "Computer Applications: Ordinary Differential Equations"; Bruno F. W. Witte, "Automatic Digital Computers," and Arthur T. Wood, "Contract Types and Incentive Procurement."

From General Atomic are: John K. Dienes, "Introduction to Mechanical Vibrations"; Eugene Haddad, "Nuclear Physics"; John Kirkbride, discussion program on "Issues of the Sixties"; and James Watson, coordinator of the lecture series, "An Atomistic Interpretation."

Schindler, Knutson Share Pistol Wins

Al Schindler fired 294 to win master class of a .22 Police Course match fired by ARA Pistol Club members Aug. 9 at San Diego Police Pistol Range.

Warren Ranscht scored 293 to place second in the upper echelon, while John Bennett (280) and Carl Jensen (276) were expert class winners. Sharpshooter bracket was led by Lee Messerli (285) and J. D. Powell (265).

A Center Fire match was won by J. S. Knutson with 286, followed by Schindler (282), Ranscht (274), and ARA Commissioner Bill Geopfarth (255).

TIE-BREAKERS — Center shot shows first-place Curley's Crew and runners-up of ETC's at awards night of GD/E Plant 2 league after Curley's Crew broke three-way tie. Standing (from left) are George Curtis, Curley's; Carl Creager, ETC's; Walt Orzechowski and Larry Crump, Curley's. Seated are Henrietta Dieter, ETC's; Maureen Brice; Curley's; Roy Dieter and Lyndall Creager, ETC's. At left are individual scratch winners: Creager, high man's game; Ann Crossland, high woman's game; Henrietta Dieter, high woman's series; Erwin Jesse, high man's series. At far right are top handicap bowlers: Nelson Foughty, high man's game and most improved man bowler; Gloria Schneider, high woman's game; Lyndall Creager, most improved woman bowler; Al Aron, high man's series.

CRA Calendar

(Convair Recreation Association has some 30 activities in operation for Convair and Electronics people. For information call CRA Headquarters, ext. 1245.)

★ ★ ★

AEROMODELERS — Flying sessions Saturday and Sunday mornings, 8 a.m. to 1 p.m., Clairemont Flying Site.

BOWLING — Registration still open for spots in winter league. Call CRA office, ext. 1245, Plant 1; Mike Brooks, 469-8793; Jim Hayman, 466-1262.

FENCING — Workouts and instruction each Friday night, 7-10 p.m., YWCA, 10th & C Sts.

GARDEN CLUB — Joint CRA-ARA meeting Sept. 2, 7:30 p.m., Floral Association Bldg., Balboa Park.

GUN CLUB — Annual open merchandise shoot Aug. 30. Monthly CRA club shoot Sept. 6, both at Gillespie Field Gun Range.

HUNTER SAFETY — Register for course by calling Frank Marchant, Gillespie Field Gun Range, 448-1825.

ICE SKATING — Autumn weekend outing to Big Bear Sept. 25-27. $12 per person. Make reservations at CRA headquarters, ext. 1245. Thursday ice skating sessions for GD people, Mission Valley Ice Plaza, 6:30-8 p.m.

MODEL RAILROAD — Work nights, Fridays, 7:30 p.m., open sessions, Sundays, 1-4:30 p.m., House of Charm, Balboa Park.

MOVIES — Reduced prices for General Dynamics people at State Theater, Euclid and El Cajon Blvd. General admission: adults, $1; children, 35¢.

PISTOL CLUB — Next club shoot Sept. 13, 9:15 a.m., San Diego Police Pistol Range, Federal Blvd. and Home Ave.

RADIO CLUB — Next meeting Sept. 3, 8 p.m., Harbor Drive club headquarters.

RIDING CLUB — Two-day campout and trail ride to Cuyamaca Park, Aug. 29-30. Meeting Sept. 3, 7:30 p.m., Gillespie Field Clubhouse.

ROCKHOUNDS — First fall meeting Sept. 10, 7:30 p.m., Gillespie Field Clubhouse. Rockhound shack reopens Sept. 9. Instruction and work sessions each Wednesday evening, 7-9 p.m.

SNOW SKI CLUB — Beach party Sept. 12 at Silver Strand State Park.

SOFTBALL — "Slow pitch" league games Thursday evenings, Central and Linda Vista playgrounds.

SPORTS CAR CLUB — Regular meeting Sept. 2, 7:30 p.m., Convair cafeteria, Pacific Hwy.

STAMP CLUB — First fall meeting Sept. 3, Convair executive dining room, 7:30 p.m.

WATER SKI CLUB — Skiing weekends on Mission Bay on phone-call basis. Call Gene Sevigny, ext. 1778, Plant 1.

When telephoning, never mind the weather. Get to the point. Telephone time costs money.

Sports & Recreation

LEADERS TIED IN 'SLOW PITCH'

LATE BULLETIN — Pre-War Personnel went ahead as only undefeated team in CRA softball play when they snowed GD/E Operations 6-0 last Thursday. Pre-War team has won 4, lost none. In extra-inning games Aug. 20, Beasts won 5-4 over Hi-Lows, and Convair Material edged past Fire Dept., 3-2.

Pre-War Personnel and GD/E Operations were running neck-to-neck at the half-way mark of CRA "slow pitch" softball league's second round. They tied for first half title and both stood 3-0 after Aug. 13 games.

GD/E Material dropped its Aug. 6 game to GD/E Operations to stand 3-1.

Other Aug. 6 results were Pre-War Personnel over Fire Dept. 13-2; Hi-Lows beat Convair Material, 10-7. The next week Pre-War boys downed Convair Material, 8-6; GD/E Material blanked Beasts, 5-0; and GD/E Operations took their game from Hi-Lows, 14-5.

Tomorrow night Pre-War Personnel will play Beasts at 8 p.m. on Central playground field. Hi-Lows meet GD/E Material at 6:45 p.m. and GD/E Operations team plays Fire Dept., 8:20 p.m., both at Linda Vista. Convair Material draws a bye.

Rockhounds Return From 'Vacation'

CRA Rockhounds get back to work next month after a couple of months vacation from club activities.

First regular meeting will be Thursday, Sept. 10, at 7:30 p.m. at Gillespie Field Clubhouse, reminds Dan Whorton, commissioner. A movie will be shown and plans discussed for fall field trips.

The lapidary workshop reopens the preceding day, Sept. 9, after the usual summer renovation. The Gillespie Field shop will be back on its Wednesday evening schedule with instruction available from 7-9 p.m.

CRA STAMP CLUB WILL RESUME

First fall meeting of the CRA Stamp Club is set for Thursday (Sept. 3), said CRA Commissioner Jack Benedict. The club has been on vacation during July and August. Meeting time will be at 7:30 p.m. in the Convair executive dining room, Pacific Hwy.

GD/E GOLFERS TO PLAY SEPT. 5 AT BALBOA

GD/E Men's Golf Club has scheduled a match on Saturday (Sept. 5) at Balboa Park course. Tee-off time is 9:31 a.m., reminds Ernie Paul, club president.

RaNae Rated Top Woman With Javelin

RaNae Bair made it, just as she said she would!

The 21-year-old GD/Electronics daughter has broken all records, even her own, since she set out last spring to win herself a spot on the U. S. Olympics javelin team. **(GD/NEWS, April 17, 1963).**

RaNae, daughter of Glen Bair of GD/E Plant 2, is now rated U. S. women's champion javelin thrower after winning the Women's Olympic Trials early this month in New York City.

Her record throw of 176 feet was nearly three feet farther than the American record which she broke in National AAU competition at Hanford, Calif., earlier this summer. She won the AAU title with a throw of 173 ft., 4½ in.

The tall (5 ft., 11 in.) girl has come a long way on the path she laid out for herself when she placed second in 1962 Women's Outdoor Nationals after only three weeks of practice.

She was tapped San Diego Star of the Month for July by the Breitbard Athletic Foundation for her accomplishments.

She will be in training in New York during September before heading for Tokyo, Japan, and the Olympics in October.

Charger Home Game Tickets Available

Convair and GD/E football fans will be able to get their tickets to all Chargers home games at Convair and GD/E employee services.

Now on hand are tickets to the pre-season game Sept. 5 with the Oakland Raiders.

Sale will start Sept. 1 for tickets to the first home league game Sept. 12 with the Houston Oilers.

Curley's Crew Captures GD/E Summer Bowling

Curley's Crew triumphed in the GD/Electronics Plant 2 bowling league when they broke a three-way tie in play-off sweepstakes Aug. 12 at Pacific Recreation alleys.

Curley's Crew, the ETC's, and Foughty's Follies all stood 31-17 at end of the 12-week summer bowling season. ETC's came in a close second to garner runner-up trophies.

Other awards handed out the same night went to Carl Creager for high individual man's scratch game, 239; Ann Crossland, high women's scratch game, 196; Erwin Jesse, high man's scratch series, 604; Henrietta Dieter, high woman's scratch series, 507.

Handicap winners were Nelson Foughty and John Brown who tied for high man's game with 253s; Gloria Schneider, high woman's game, 235; Al Aron, high man's series, 701; and Marge Swinko, high woman's series, 653.

Foughty raised his average by 15 pins to take home the Most Improved Bowler award for men. Lyndall Creager won the same trophy for women by increasing her average by 13 pins.

Sign-ups now are being taken for the GD/E Plant 2 winter league which will roll into action the middle of September at Pacific Rec Wednesday evenings at 6:30 p.m. Call Pat Haack, Plant 2, ext. 110.

Snow Skiers to Meet For Strand Outing

Convair snow skiers will try their skill on water at their all-day beach party Saturday (Sept. 12).

They will join the Don Diego Ski Club at Silver Strand State Park for a full day of swimming and skiing topped with a steak fry in the evening, says CRA Commissioner Joe Harris.

The CRA boat used by the Water Ski Club has been obtained for the day. Skiing will get under way at 11 a.m. with dinner served at 5 p.m. Charge for the meal is $2 each.

Harris asks all planning to join the party to call him for reservations at his home phone, 284-0278.

Football Tickets Are on Sale Today

Tickets to tonight's (Aug. 26) San Diego College Prep Charity Football Game may still be purchased today at Convair employee services.

The benefit pits All-City star players against the All-County team in SD State College's Aztec Bowl at 8:15 p.m.

General admission is $1.50. Reserved seats are $3.

The annual event is sponsored by Breitbard Athletic Foundation with proceeds going to the San Diego Children's Dental Health Center to provide dental aid to needy children.

BUSCH ATTENDS MODEL CONVENTION

Karl Busch of GD/Convair Dept. 16 attended the annual convention of the National Model Railroad Association in Philadelphia, Pa., last week, Aug. 19-23. Busch is NMRA convention committee chairman and past president of the San Diego Model Railroad Club.

SPORTS CAR FANS WILL TEST SKILL IN UNIQUE RALLY

Expert Convair and GD/E drivers are invited to try their skill in an European-style rally Sept. 12, sponsored by the ARA Sports Car Club.

"La Separateur," as the rally is called, will separate the men from the boys. It will take drivers 300 miles over the worst possible roads in San Diego and Riverside Counties, promised ARA Sports Car Club president, Jack Gallant.

Route instructions will be few and simple, and entrants will receive an advance course map to enable them to pre-run the route.

Entry fee is $5 per car, with applications at Astro employee services and most sports car dealers.

"La Separateur" is open to all motoring fans, whether or not they are ARA club members.

All cars must be equipped with seat belts.

Starting point is ARA Clubhouse parking lot, with the first car out at 10 a.m.

Details are available from Gallant, Astro Plant 71, ext. 2028, or Dennis Scannell, rallymaster, Astro ext. 1316.

Betty Liddell Low For Women's Golf

Betty Liddell shot low score to win the GD Women's Golf Club monthly match over the new River Valley course in Mission Valley Aug. 8.

Six foursomes turned out for the tourney.

Jerri Cooper of Convair came in second; Doris Parker, also Convair, third; Ann Gagnon, fourth. All received gift certificates drawn on the River Valley pro shop.

Mary Ransom, past president, was surprised with a gift of a white wool sweater from the group. Mary, formerly of GD/E, was one of the girls responsible for organizing the golf group and directed the club during its first year.

Girls will compete in a three-club tourney at Mission Bay course on Sept. 12.

LENS CLUB CANCELS SEPT. 6 MEETING

Camera Club has cancelled its Sept. 6 meeting because of the Labor Day holiday weekend. Next regular meeting will be the third Sunday of the month (Sept. 20) in Balboa Park's Photo Arts Bldg.

First Ocean Data Buoy Launched, Awaits Storm Test Off Florida

Launching ceremonies were held last week for GD/Convair's first full-scale oceanographic buoy to be readied for initial tests off the Florida coast in time for the hurricane season.

The buoy is designed to gather ocean and weather data and radio the information to shore.

The 40-ft. diameter, discus-shaped buoy, one of two developed and fabricated at Convair under a contract with the Office of Naval Research, Washington, D.C., was put into the water at Jacksonville, Fla., Aug. 20.

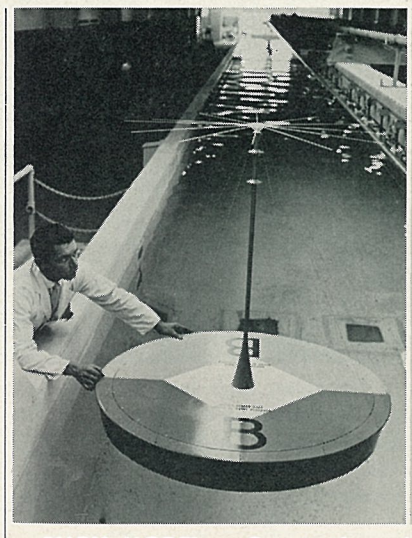
It will be towed early in September to the test area about five miles off the coast of Miami.

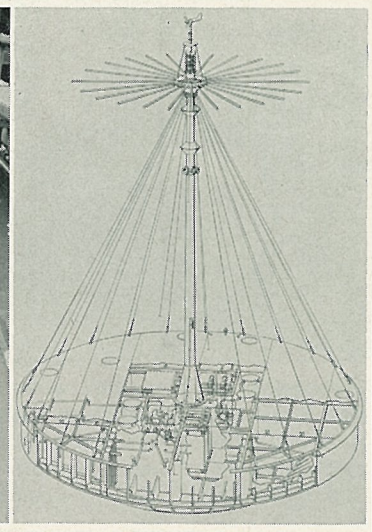
There it will be moored in shallow (300-ft. deep) water and remain for the next few months, or until it has been exposed to the full blasts of a hurricane, thereby proving its ability to withstand any type of weather.

Buoy B's designation, "Bravo," for the international code word, is especially fitting, points out Robert Devereux, Convair project manager for the oceanographic buoy development program, since it will have to survive the roughest kind of sea and air turbulence. (Prototype A "Alpha" will be put into West Coast waters later this year for a different series of tests.) Bravo was launched first to take advantage of the imminent hurricane season.

The Gulf Stream test series will permit Convair engineers to verify the buoy's seaworthiness and structural design characteristics under the severest conditions.

Other objectives of initial checkouts are to measure: the physical strain on critical structural areas, such as the mast and mooring line attach points; tension on the mooring line; acceleration of the buoy in three dimensions and angular motion; hull vibrations caused by wave impact; water pressures exerted on the hull; critical temperatures and voltages of the systems inside the buoy.





BUOY MODEL — One-tenth scale model of long-range oceanographic telemetering buoy developed by GD/Convair under sponsorship of Office of Naval Research, Washington, D.C., is tested in Convair towing basin by Ted Sladek of Convair marine sciences. At right, cutaway sketch shows location of telemetry and instrumentation equipment within pie-shaped steel hull, 7½-ft. deep. Eight compartments, four containing electronics and energy conversion equipment, four filled with plastic foam for flotation, are hermetically sealed and filled with dry nitrogen to protect equipment from salt water and moist atmosphere.

Convair's long-range telemetering buoy is termed the most essential feature in the development of a system for gathering and storing oceanographic data and transmitting it to shore stations from thousands of miles out at sea.

The buoys can be equipped with more than 100 oceanographic and atmospheric data-gathering sensors for acquisition of oceanographic and atmospheric data which can be stored up to a year and transmitted to shore upon radio command. **(GD/NEWS, March 25, 1964.)**

The buoy carries maritime safety equipment — a high-intensity xenon flashing collision-avoidance light which will last a full year, and an automatic fog signal.

★ ★ ★

Steel hull for the 55,000-lb. red and yellow buoy was fabricated at the Jacksonville Shipyards. However, other main components making up the complex telemetering "sea stations" are being produced at Convair.

Production departments at the San Diego division, including tool fabrication, sheet metal, welding, plastics, and experimental, have played an important part in construction of parts.

Built in-plant were the 40-ft. hollow steel schnorkel mast with outlet duct for engine exhaust and two air inlet ducts for the electric generators; instrumentation and cable assemblies; impedence-matching coil; fiber glass antenna, which may be the largest of its type ever fabricated; the antenna mount which holds the antenna radials and tripod for support of a device to measure wind direction and velocity, and the mooring attachment pin and dynamometer for measuring tension in the mooring line.

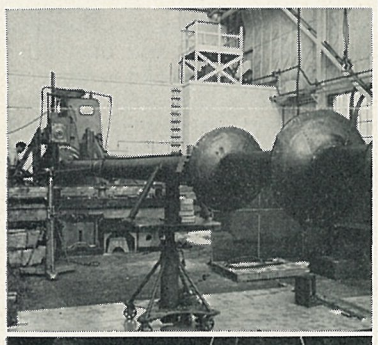
The mooring pin's instrumented universal joint is bolted to the bottom of the buoy, attaching through the skin to the main structure. It permits measurement of the angle of the mooring line at all times to allow Convair engineers to determine just how much the buoy's angle influences data recorded during wave changes.

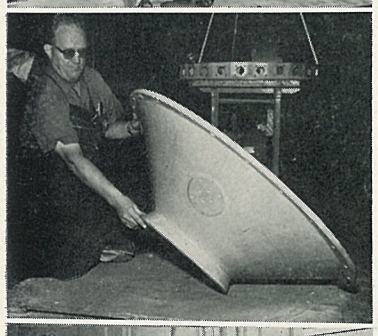
The helix coil located in the center of the buoy hull acts as a terminating impedence for the transmission line and as a lightning protector to keep most of the electrical current from flowing down the center of the transmission line, thus protecting electronic equipment. A fiber glass core, formed in Convair plastics, supports the copper coil to keep it from collapsing from the electrical current that would pass through it in the event a lightning bolt should strike the buoy.

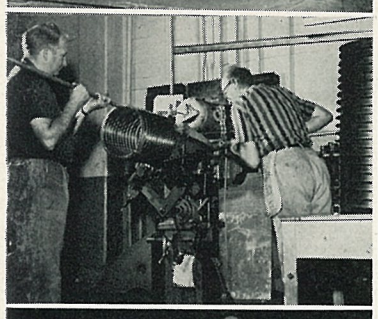
The large 45-in. diameter insulator, the coil, and transmission line which feeds power to the buoy's discone antenna are uniquely designed with electrical conductors running through the inside of the transmission line's center conductor so that signal wires from the instrumentation on top of the antenna disc will not cause a short circuit of the antenna insulator.

The two engine generators for the prototype buoy were put through accelerated checkouts at the Convair plant, running the equivalent of six months at sea, twice as long as the preliminary test series. Six months time was compressed into about two months with the engines running three hours on and three, off. In actual operation each generator normally will operate three hours a day.

Operation is controlled by automatic programming equipment which tells the generators to start, or stop, charging batteries, switches generators at regular periods, cuts one out of the system in case of failure.







IN WORKS — Buoy components during fabrication at Convair are (from top): 40-ft. hollow steel mast being machined on Lucas boring mill in tooling; L. D. Rush (Dept. 131) with large 45-in. diameter and 14-in. deep insulator, one of largest of its type ever made. (Insulator and fiber glass core for helix coil were formed in plastics department.) In next shot, L. S. Meland at right and J. H. Hammer, both of Dept. 101, roll copper channel for helix coil in spiral on contour roll machine; and in bottom photo, Rush, S. W. Trotter, H. C. Cook, all of experimental, place antenna mount on insulator.

Uyeda Named Deputy Mgr.

S. T. Uyeda, who was responsible for the development of the oceanographic buoy configuration and coordination of design at Convair, has been named deputy project manager for the program, announced Robert Devereux, oceanographic buoy project manager.

Uyeda, who has been directly in charge of fabrication of the first prototype buoy at Jacksonville, Fla., Shipyards, is directing the test program in the Florida straits. He has been associated with the program since its inception nearly five years ago.

Warren Hoover, who designed the buoy's energy conversion system, will be in charge of the West Coast test series, reporting to Uyeda.

Ken Jones, also based at the Florida location during preliminary test stages, is responsible for preparation of all instrumentation and telemetry for the prototype tests. Jones, formerly assigned to the Little Joe II as instrumentation engineer, joined the buoy program early this year. He brought into the oceanographic buoy program a wide background and extensive experience in instrumentation, said Devereux, and was able to put together the engineering data acquisition system in three months, half the time normally required on similar large programs.

Convair Man Authors Book About Fatigue

"Tips on Fatigue," prepared by GD/Convair's Clarence R. Smith for the Bureau of Naval Weapons, is now available to the general public through the U.S. Government Printing Office, Washington, D. C.

The book, profusely illustrated with photographs, cartoons, and graphs, deals with the fatigue problems of metal structures. It was compiled as a simple guide on how to recognize potential fatigue problems, rectify existing problems, and avoid getting into situations that may cause problems.

Smith, a fatigue specialist, prepared the material over a year and a half under a Navy contract.

Copies are priced at 70 cents.

Converted Bus Will Receive Radio Signals From Buoy Anchored 5 Miles Off Shore

A shining, silver Greyhound bus takes on a new role, and a new look, as a mobile ground station for Convair's oceanographic buoy program.

Purchased in San Francisco, the vehicle has been rehabilitated at Convair. The interior was entirely replaced with carpeting, reupholstered seats, new panels and ceiling with Dept. 131 doing the work.

Instrumentation equipment to command and receive data from the buoy's telemetry package was installed together with air conditioning so that "design limits of equipment and operators will not be exceeded," in the words of Convair engineers.

It will be used first to check instrumentation and telemetry in the buoy at Jacksonville.

When the buoy is moored in the Miami test area next month, the vehicle will be parked on-station near the tall building where antennas will be located.

Telemetry data from the buoy will be picked up on the ground station's tape recorder and direct writing recorders. Tapes will be mailed back to Convair for processing in the flight test data station.

Ken Samples, assistant project manager, directed the bus conversion with J. S. Breeden, furnishings engineer, responsible for exterior and interior refitting.

READY TO ROLL — GD/Convair engineers, Jack Thayer, Bill Ellison, Warren Hoover, step aboard mobile ground station, converted Greyhound bus, for cross-country trip from San Diego to Jacksonville Fla., where they will check instrumentation and telemetry in the buoy. Seated within refitted bus is Ken Samples, oceanographic buoy assistant project manager. Standing is Joe Breeden, furnishings engineer, who designed refitting. At far right is Robert Devereux, project manager, at instrumentation panel which will record data from buoy during tests.

OLD TIMER — Fred Lee of GD/Astro holds "Old Tom," a seven-year veteran of Sycamore Canyon Test Site operations. "Old Tom" lives in test stand areas (like S-4 in background), always quits area prior to tests and stays away until "all clear" is sounded.

Cautious

Astro Feline Wary of 'Runs'

Like most Felis catus, "Old Tom" has a built-in warning system for dangerous situations.

Big, black and cautious, he has survived for more than seven years as an unofficial mascot in the test stand areas of GD/Astronautics' Sycamore Canyon Test Site. He is a "veteran" of both Atlas and Centaur tests.

When personnel begin evacuating test stand areas in preparation for engine runs or fueling tests, "Old Tom" can be observed hot footing it over the nearest hill where he stays until well after "all clears" are sounded.

He arrived at S-1 in the early days of the Atlas program and set up "residence." He ate handouts and caught an occasional mouse or ground squirrel. He slept where he liked.

After S-1 was damaged in a test incident, "Old Tom" disappeared for several months. Then he returned to S-4 and resumed his routine.

His friends admit he's slowing down, preferring the cat food provided him to handouts and adopting a let-live attitude. Night crews say they have seen him sharing his food with a small mouse. And he spends more time in the soft bed provided for him than ever before.

But one thing is certain—his warning system is as good as ever. He still hustles out of the area when he notes preparations for tests!

Tartar and Terrier Models on Exhibition

Full-scale models of Tartar and Terrier supersonic missiles were on display at Port Hueneme, Calif., during a week-long open house celebration earlier this month. Tartar and Terrier missiles, produced at GD/Pomona, now provide anti-aircraft protection on 52 ships of the U. S. Navy.

GIIIIIIID

SAN DIEGO EDITION
(Serving GD/CONVAIR
and GD/ELECTRONICS)

GENERAL DYNAMICS NEWS

Vol. 17, No. 19 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, September 9, 1964

Business Courses Help to 'Keep Up'

A first-of-its-kind opportunity for all General Dynamics people in San Diego to keep abreast of advanced technology in the fast-moving business field is offered this fall as GD/Astronautics and GD/Convair
(Continued on page 4)

Mgt. Club Plans South of Border Fiesta Sept. 25

A gala Fiesta Dance will be hosted by Convair Management Club board of control for Management Club members at the new Fronton Palacio Cafe ballroom in Tijuana, Mexico, on Friday, Sept. 25.

Real "south of the border" atmosphere will be provided by a strolling troubador trio that will play favorite Spanish tunes and requests during intermission. A tortilla-making demonstration also will interest members. It will show the traditional method, still used in Mexico, of grinding the corn by hand on a metate and patting the "masa," or dough, into shape.

A seven-piece orchestra will provide music for dancing from 8 p.m. to 12:30 a.m. in the ballroom, a new addition to the elaborate Fronton (Jai Alai building) facilities. The location was made available for the Management Club dance through arrangements made by Jim Hardison of Convair service parts, local Spanish instructor and tour conductor.

Parking accommodations will be provided in the Fronton Palacio parking lot.

W. J. Wood, Management Club president, emphasizes that the Fiesta Dance is an excellent opportunity for club members to enjoy an outstanding social evening and to observe the more exclusive side of Tijuana, not usually seen by San Diegans and tourists.

Tickets, at $2.50 each, are now on sale at all regular outlets throughout Plant 1.

GD/Convair Studies Fastener Fatigue

A $6,542 study contract has been awarded GD/Convair by the Naval Air Engineering Center, Philadelphia, Pa., to acquire and compile fatigue test data on aircraft interference fit fasteners.

The fasteners are, in effect, bolts used throughout all aircraft structures where high fatigue life is desired.

C. R. Smith, Convair fatigue specialist, will conduct the study during the next four months. He will visit Boeing Co., McDonnell Aircraft Corp., Lockheed-Georgia Co., North American Aviation, Inc., and GD/Fort Worth to collect data which he will incorporate with test data he has developed for GD/Convair research programs.

GD/E, S-C Wives To Meet Tomorrow

Tiki Room of the Catamaran will be the setting tomorrow, Sept. 10, for the monthly luncheon of GD/Electronics and S-C wives and their guests. Social hour is at noon with luncheon served at 12:30 p.m.

Co-hostesses for the occasion are Mrs. Mits Hishihara and Mrs. Roger Olson. Additional information may be obtained from Mrs. Olson at 298-1766.

Savings Exceed Target Figure For Half of '64

GD/Convair saved over $3½ million during the first six months of this year to reach well over half of the 1964 goal established for the Corporation's Cost Reduction Program, Division President J. H. Famme reported.

The six-month cost avoidance and hard cash savings totaled $3,584,000. Target for the year is $5,104,000.

"The value control and cost reduction program continued to accelerate at a rapid pace during the second quarter with more cost reduction projects originating from more departments," said H. P. Williams, manager of value control.

Savings for the second quarter alone amounted to $2,659,000.

Largest share of savings during the first half of the year, $1,478,000, came from the area of procurement cost improvement. Value control projects implemented after evaluation following value vs. cost seminars were credited with $645,000.

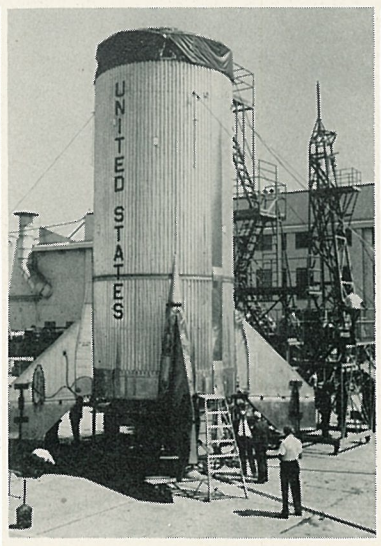
Employee Suggestions and Cost Improvement Proposals resulted in savings of $482,000 by putting into effect more economical methods and materials suggested by employees on the job.

Another $202,000 has been trimmed from overhead expense by resources economics and conservation projects. Management improvement reduced labor cost by $555,000. Productivity improvement saved $222,000 of its year's target of $235,000.

All dollar amounts are actual savings, audited and verified under responsibility of John D. Milling, division controller.

To date, 562 Convair people have been through the division's value control workshop seminars and another 240 have attended indoctrination courses. The same training has been conducted for 110 customers and suppliers in seminars and 130 in shorter capsule courses.

Future plans in Convair's cost improvement efforts, as outlined by Williams, call for "continued motivation of all personnel, departments, and suppliers to submit more cost reduction ideas; continuation of value engineering training; communication with other divisions on cost reduction ideas; and provision of tools for rapid retrieval of vendor information for use of engineering and purchasing personnel."



INSPECTED—Initial Little Joe II launch vehicle to bear new attitude control system passes NASA review in recent scrutiny at GD/Convair plant. Vehicle, fifth to be built for NASA, will go to White Sands Missile Range, N.M., this month with test flight scheduled later this year.

Little Joe II Flight Control System Okayed

Attitude control system of the first Little Joe II launch vehicle to be equipped with the new-type flight control system passed NASA review with high honors late last month.

W. M. Bland Jr., headed the Development Engineering Inspection board at Convair for the Aug. 20 overall inspection of the fifth vehicle, next to be launched at White Sands Missile Range, N. M. Bland is chief of the test division of Apollo Spacecraft Program Office at NASA's Manned Spacecraft Center.

Evaluation of the vehicle was termed mutually satisfactory. Only minor changes in instrumentation and circuitry were recommended by the board. These changes are being implemented and additional improvement changes for installation in future vehicles are under study.

The completed Little Joe II will move out of Convair later this month bound for the New Mexico test range where it will be readied for test flight.

DEI board members besides Bland were F. J. Bailey, J. A. Chamberlin, J. W. Dodson, E. M. Fields, O. G. Morris, A. E. Morse Jr., and J. J. Shannon.
(Continued on Page 2)

New S-C 4400 Readied For Fall Introduction

A new computer microfilm printer which speeds record retrieval and saves costly data handling steps has been developed by General Dynamics' Stromberg-Carlson division.

The new printer, first to provide computer-to-film retrieval system, is designated the S-C 4400. It is being manufactured at Stromberg-Carlson's San Diego facility.

The S-C 4400 is capable of printing speeds of 62,500 alphanumeric characters per second. It operates directly from a computer or from computer-generated magnetic tapes and translates digital signals into words, numbers, and symbols. The output is recorded automatically, a page at a time, on either 16 mm or 35 mm microfilm.

The printer was developed as a new link between computers and film storage and retrieval systems. It eliminates the need to produce magnetic tape in the process of converting computer data into microfilm.

The need for paper output from computer is eliminated in many operations since selected pages can be produced on paper from the S-C 4400's film output.

The tasks of manually handling paper and magnetic tapes are also eliminated. In addition, the job of microfilming and coding documents for retrieval purposes is performed automatically.

The new printer produces microfilmed documents at a rate of 50,000 pages per shift. Visual indexing codes compatible with most semi-automatic and automatic storage and retrieval systems are imprinted on the film automatically, allowing compati-
(Continued on Page 2)

Convair Lauded For Performance On Little Joe II

Recognition of GD/Convair for a good job well done thus far on the Little Joe II program was expressed recently in a "Contractor Performance Evaluation" issued by National Aeronautics and Space Administration.

The report came from the office of Joseph F. Shea, manager, Apollo Spacecraft Office, Washington, D.C., and in his acknowledgement J. H. Famme, GD/Convair president, commented:

"I am personally convinced that this performance can be attributed primarily to the splendid working relationships established early in the program between the members of your staff and the Convair Little Joe II project team.

"There has been, and continues to be, an outstanding spirit of cooperation between you, as our customer, and our project team headed by Jack Hurt."

In summarizing performance, the evaluation stated: "GD/Convair has performed, in all respects, as desired by NASA/MSC . . . Of particular significance has been the integrity of the GD/Convair Little Joe II management personnel. Above and beyond a legal obligation to perform, GD/Convair has demonstrated an ethical awareness, reflected in their recognition and acceptance of moral obligations . . ."

The evaluation was based on a solicitation of opinion from all persons in a position to know and thoroughly reviewed division performance from the beginning of the program in 1962 to the present. The report takes full recognition of the fact that the division performed well, even while enduring a severe reduction in overall work load. Listed among the division's "strong points" was considerable effort "in cost reduction, and effecting more efficient systems and methods of operation."

The report also called attention to the high caliber of personnel assigned to the project at all levels, resulting in "an obviously beneficial effect on the Little Joe II program in terms of management, quality, and cost savings."

Also singled out for comment were proficient planning involved in adjusting to modified requirements in the course of the program, and for the system of reporting in which Convair has been exceptionally cooperative and helpful in supplying internal records and data requested.

Convair is building eight Little Joe II boosters under a contract from NASA's Manned Spacecraft Center, Houston, Texas. Little Joe II is designed specifically as an economical and dependable launch vehicle to propel Apollo spacecraft on sub-orbital test flights as one of the preliminary stages in the man-on-the-moon program.

So far, two successful flights of Little Joe II have been conducted by NASA from White Sands Missile Range, N. M. The first, with a dummy Apollo payload, took place Aug. 28, 1963. This spring, May 13, a second Little Joe II successfully boosted an engineering model of the Apollo spacecraft on an in-flight test of the launch escape system.

Third flight, first to use the attitude-controlled version of Little Joe II, is scheduled during the last quarter of this year.

LITTLE JOE II LEADERS—In top photo, Milton A. Silveira, NASA technical manager on Little Joe II program, J. B. Hurt, Convair's program manager, and Paul Jaschke, acting for Little Joe II project officer, NASA, consult on program at Convair. Below, NASA men from White Sands Missile Range, at Convair plant for operational checkout of third Little Joe II launch vehicle, snapped at shirt-sleeve Management Club meeting are, clockwise around table from left: R. de la Fuente, Skip Chauvin, Eugene Jones, Richard Kowalczyk, W. L. Johnson of Convair, M. A. Silveira from MSC, Houston, Ed Baca, D. G. Moody and R. E. Malm, both of Convair, Larry Davis, and J. B. Hurt, Convair Little Joe II program manager.

SPEEDY PRINTER—New S-C 4400 high-speed computer printer, which can print 50,000 computer-generated documents on microfilm in one eight-hour shift, now is in production at San Diego facility of Stromberg-Carlson. It will be shown to public for first time in San Francisco next month.

Stromberg-Carlson 4400 Readied For Introduction This Fall

(Continued from Page 1)

bility with today's most advanced information retrieval systems.

A special compact version of the CHARACTRON[R] Shaped Beam Tube allows the printer to translate computer codes into words, numbers, and symbols at extremely high speeds. A microfilm camera automatically records the information displayed on the face of the cathode ray tube.

A form projector permits a user to superimpose a standard company signature, a business form, map, or other information on selected microfilm frames automatically through computer program control.

The S-C 4400 will be shown to the public for the first time at the Fall Joint Computer Conference in San Francisco. First production model is slated for delivery late this year.

The anticipated market for the high-speed printer includes financial institutions, utilities, insurance companies, government agencies, aerospace firms, and other organizations which handle large volumes of computer-generated records.

Log Book Entries

Jack E. Quigley, GD/Convair Dept. 6-63, now wears 25-year service emblem.

Service Emblems

CONVAIR

Service emblems due during the period Sept. 1 through Sept. 15.

Twenty-five-year: Dept. 6-22, H. W. Callihan; Dept. 115, V. J. Rocco; Dept. 401, Thains Allison, W. E. Nuckles.

Twenty-year: Dept. 3-1, T. G. Champlin; Dept. 115, B. N. Waite; Dept. 401-7, J. F. Macdonald.

Fifteen-year: Dept. 115, E. W. Carter.

Ten-year: Dept. 6, P. W. Bergsteadt, E. C. Strehlau; Dept. 15-0, R. E. Smith; Dept. 48-70, F. S. Piper; Dept. 91-1, S. W. Ronaldson; Dept. 101, W. W. Nobiensky; Dept. 115, H. W. Raymor; Dept. 400-3, W. G. Martin.

ELECTRONICS

Twenty-year: Dept. 71-00, J. C. Mitchell (due Aug. 8).

Ten-year: Dept. 52-00, J. J. Finn Jr.; Dept. 71-00, F. J. Quinten.

Awards

CONVAIR

Employee Suggestion Awards approved for period ending Aug. 21.

Dept. 91-1, C. C. McLaughlin, $10.

Dept. 102, F. M. Baxter, $32.40.

Dept. 115, M. E. Long, $10.

Dept. 119, V. Breit, $17.88; R. J. Wilsterman, $27.10.

Cost Improvement Proposal approved for the same period.

Dept. 102, V. P. Mavrinac.

Retirements

CONVAIR

BLAKE—James O., Dept. 25. Seniority date July 8, 1941, retired Aug. 7.

FIRKINS—Edward G., Dept. 31-0. Seniority date June 7, 1950, retired Aug. 15.

FISHER—Mildred M., Dept. 62-1. Seniority date May 4, 1942, retired Aug. 28.

HEATH—Leslie O., Dept. 3-1. Seniority date July 20, 1950, retired Aug. 26.

MARINE—William R. Sr., Dept. 401-4. Seniority date Sept. 14, 1951, retired Jan. 3.

SPARKS—William E., Dept. 23-3. Seniority date Oct. 2, 1952, retired May 23.

Deaths

CONVAIR

FORD—John J., Dept. 6. Died Aug. 29. Survived by wife, Marian, two sisters, father.

Wilkens to Appear On Institute Panel

D. C. Wilkens Jr., director of industrial relations at GD/Convair, will take part in the ninth annual Middle Management Institute sponsored by the University of California Extension in cooperation with San Diego Chapter of American Society of Training Directors.

Wilkens will be a member of the panel on new approaches to resolving labor-management differences at the Nov. 20 session.

The Institute, arranged for San Diego executives and managers, is conducted on five alternate weekends from Oct. 9-10 through Dec. 4-5.

Enrollment Opens For Cal. Extension

General Dynamics people who intend to enter University of California Extension this fall may enroll now at the office, 1221 Fourth Ave.

A temporary enrollment office will be open in Room 111, Roosevelt Junior High School from 6:30-8:30 p.m. from Sept. 21-24, and Sept. 28 through Oct. 1.

For detailed information call the University Extension Office.

General Dynamics NEWS

Published by General Dynamics Corporation, One Rockefeller Plaza, New York, N. Y. 10020; with editorial headquarters at 3302 Pacific Highway, San Diego, Calif. 92112, P.O. Box 1950, telephone 296-6611, ext. 1071. Logan Jenkins, editor-in-chief.

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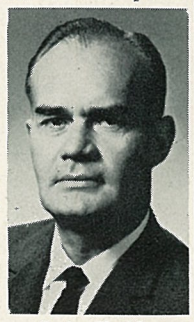
Affiliated editions of General Dynamics NEWS are published in Rochester, N. Y., covering GD/Electronics and Stromberg-Carlson, editorial offices, 100 Carlson Road, HUbbard 2-2200, ext. 2555. Fred E. Voss, editor; and at Groton, Conn., covering GD/Electric Boat, editorial offices at Groton, HIlltop 5-4321, ext. 300 and 513, Joseph Tracey, editor.

Clothier Gets S-C Product Support Post

E. L. Clothier has been promoted to manager of product support at Stromberg-Carlson data products, San Diego, A. H. Wisdom, data products manager of engineering, announced.



E. L. Clothier

Clothier, who originally joined the company in 1959, replaces C. R. McGehee who has left the division.

"Clothier has considerable experience as a field service representative in the electronics field, and we feel fortunate that he decided to return to us early this year from a managerial post with Martin-Marietta," Wisdom said.

Before coming to Stromberg-Carlson, Clothier had been with Raytheon Co. for eight years. He was Raytheon's technical advisor to the director of electronics for the Brazilian Navy on shipboard electronics equipment.

He joined Stromberg-Carlson's field service department in 1959 and was head of field engineering before leaving in 1960 to go to Martin-Marietta. While at Martin he was manager of residency operations at the Titan II missile complex, Little Rock, Ark.

CON-TRIB-CLUBS UP MEMBERSHIP AS DRIVE ENDS

Nearly 350 new members of Con-Trib-Clubs at GD/Convair and GD/Electronics divisions signed during the Aug. 17-21 annual drive to give both divisions healthy membership participation.

GD/Electronics' percentage was boosted to 87 with 75 new members pledging contributions through payroll deduction. GD/E had 80 per cent participation at the opening of the campaign.

Convair's drive brought 262 new members and raised the division's participation from 77.4 to 86.1 per cent. There are now 2,656 Con-Trib members at Convair.

In addition, 355 of those already contributing volunteered increased donations to bring their chartible contributions in line with the current "fair share" scale of giving.

Little Joe Flight Controls Approved

(Continued from Page 1)

Other NASA men at Convair for the inspection were: J. Anderson, Ed Baca, J. C. Cain, C. A. Chauvin, J. Conlon, R. de la Fuente, N. B. Farmer, P. E. Fitzgerald, C. M. Giesler, G. I. Good, P. S. Jaschke, E. H. Jones, R. J. Kowalczyk, E. J. Langenfeld, O. P. Littleton, J. Marion, J. Mayo, B. J. McCarty, R. Messier, W. W. Petynia (former Little Joe II project officer), B. Rogers, D. M. Severson, M. A. Silveira, S. Sjoberg, P. L. Suttler, F. W. Warner, E. Weeks.

North American Aviation, Inc. representatives were T. W. Batson, L. W. Lish, J. F. Proctor.

J. Fury represented Aerojet Corp. Cdr. R. A. Evans, Fred Haverlandt, and F. H. Wallbrink of the BUWEPSREP office also participated.

COIN COLLECTORS TO MEET SEPT. 17

CRA Coin Club will hold its monthly meeting Thursday, Sept. 17, 7:30 p.m. in the main Convair cafeteria, Pacific Hwy. A 1909D five dollar gold coin will be raffled and a door prize given. The usual auction will be held and refreshments served. Everyone is welcome to attend.

S-C VISITORS—Cdr. E. Skidmore and group from Naval Air Development Center, Pa., discuss Stromberg-Carlson data products with Arch Wisdom, manager of engineering (third from left), and Jim Redman, manager of government research, during recent visit to San Diego facility.

Tail Ice Fails to Affect 880-M, Engineers Prove in Japan Test

Convair's 880-M jet transport is apparently unaffected by tail ice, concluded a GD/Convair team back recently from Japan where it conducted flight tests for the Federal Aviation Agency.

Al Cappelen, Convair engineer who coordinated the tests for FAA certification of Japan Air Lines' 880-M version without the tail de-icing system in operation, said that early results were as satisfactory, if not more so, than similar tests conducted on a TWA 880 some months ago.

Cappelen, Lyle McClain, instrumentation engineer, and Pilot John Knebel were in Tokyo from Aug. 11 to 14 to put the JAL 880-M, named Kaede for "maple," through 10½ hours of flight in simulated severe icing conditions. Wooden shapes mounted on tail leading edges and plugs on stabilizer booms played the part of ice which would form in 45 minutes of heavy icing.

FAA officials, Japanese Civil Aeronautics Board members, and JAL engineers participated.

A type inspection report is being prepared for FAA approval and ultimate certification.

Chargers Tickets On Sale In-Plant

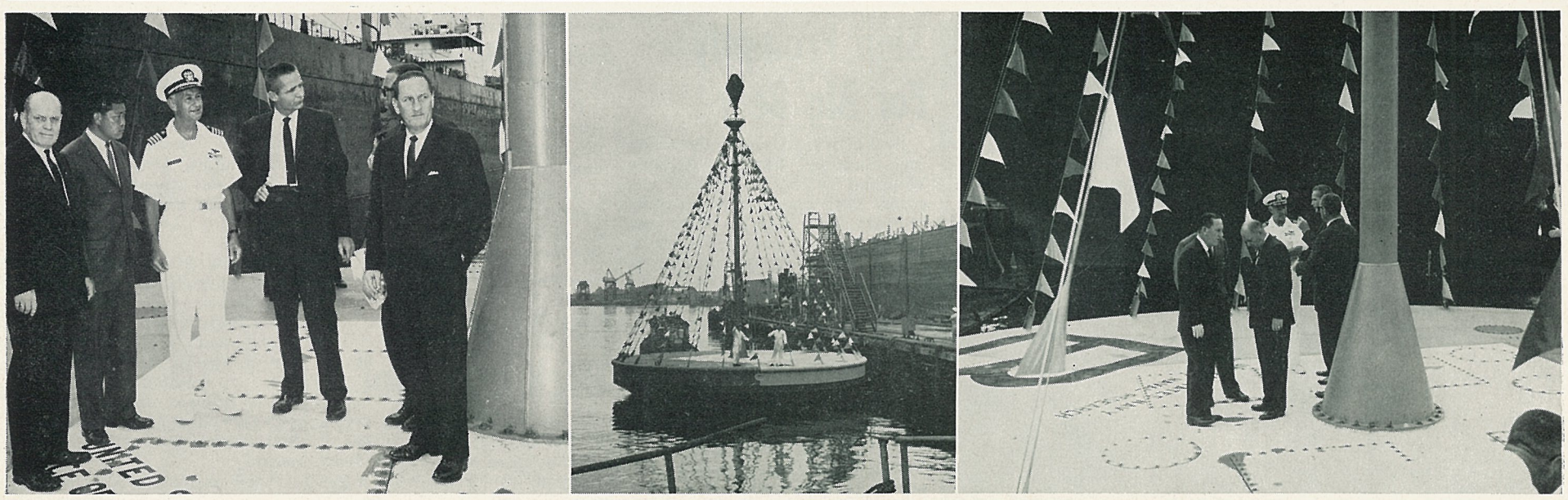
Tickets to Chargers home game against the Boston Patriots, scheduled Sunday (Sept. 20), go on sale next Monday at Convair and GD/E employee services.

Football fans may still get tickets to the Chargers' first home game this Saturday (Sept. 12) with the Houston Oilers.

Discount price is $2.50.

TEST TEAM—Convair, FAA, Japanese Civil Aeronautics Board, and JAL men who joined in recent flight tests to certify JAL 880-Ms for operation without tail de-icing system include: Back row, L. M. Starbuck, FAA flight test engineer (third from left); S. Kobayashi, JCAB engineer; Dean Melton, FAA pilot, behind M. Nishitani, JAL pilot (center). Convair's Al Cappelen and Lyle McClain are third and fourth from right. Pilot John Knebel kneels in center front with Y. Ohkawa, JAL flight engineer, and C. Noda, general manager in JAL's engineering department, at his left.

SCHOLARSHIP WINNER—Bryan Cheney, Convair's lone winner of General Dynamics Merit Scholarship for 1965, is congratulated by Division President J. H. Famme before departure next week for Harvard University where Bryan will enter architectural sciences curriculum. Scholarship winner is son of Mr. and Mrs. Harold K. Cheney.



BUOY LAUNCH—First launching of Convair-designed oceanographic buoy at Jacksonville, Fla., late last month (Aug. 20) was termed "highly successful." Feenan Jennings, head oceanographer for Office of Naval Research which is sponsoring program, lauded Convair for development and design of prototype, first step in world-wide ocean and atmosphere information gathering network. In center, 40-ft. buoy, weighing 25 tons, is carefully lowered into river by huge crane. At left, Convair President J. H. Famme; S. T. Uyeda, Convair deputy project manager; Capt. John Mckroth, commanding officer at NAS, Jacksonville; Jennings; Robert Devereux, Convair project manager for buoy program; Martin Kerwin, president of Jacksonville Shipyards which built buoy hull, stand on buoy's deck. Size of buoy can be seen at right with same group small in comparison with large steel mast. Buoy will be on station off Miami by middle of this month.

First Step Near for GD Merit Scholars of 1966

All General Dynamics sons and daughters entering school this semester as high school juniors, should take the first step toward qualification if they wish to be considered for annual General Dynamics Merit Scholarships.

Students who will graduate in 1966 may apply now to take the National Merit Qualifying Test given next March to second semester juniors or first semester seniors. Application must be made through the student's individual high school counseling office.

Semifinalists in the current 1964-65 program will be announced on Sept. 24. These are seniors who qualified in initial tests administered this March for scholarships awarded next spring.

These semifinalists will be asked to take the scholastic aptitude test of the College Entrance Examination Board on Dec. 5, 1964, if they have not already taken it. They will indicate their college choices and their major fields of study. The college choices are open to change any time up to Jan. 1, 1965.

Students whose school records, recommendations, and second test scores support their qualifying test performance will be named finalists. Actual winners of scholarships will be determined by final evaluations by the Merit Scholarship Selection Committee, a panel of 16 educators from various sections of the country, Jan. 19-22.

Scholarship winners for 1964-65 will be announced April 28, 1965.

Each Merit Scholarship is a four-year award, ranging in amount from $250 a year to a maximum of $6,000 for the entire four years, depending upon family financial circumstances and cost of attending the college or university chosen.

All natural and legally adopted children of General Dynamics Corporation employees are eligible to compete. Employees must have completed at least two years of continuous company service by the end of the year before date of awards.

Sons and daughters of retired or deceased employees also are eligible.

General Dynamics has participated in the National Merit Scholarship program since 1961, providing a maximum of 12 scholarships a year. Now, 41 sons and daughters are attending school on GD scholarships.

Entering college this fall on 1964 scholarships are: Thomas D. Crouch, son of Mr. and Mrs. Kenneth L. Crouch; Dean M. Sandin, son of Mr. and Mrs. Dean Sandin; Robert W. Franson, son of Mr. and Mrs. Wilfred R. Franson, all of GD/Astronautics.

Convair—Bryan C. Cheney, son of Mr. and Mrs. Harold K. Cheney.

Electric Boat—David Carl Erikson, son of Mr. and Mrs. Leslie C. Erikson.

Paul Raymond Cary, son of Mr. and Mrs. Raymond J. Cary Jr., now of GD/Pomona, formerly of GD/Electronics-San Diego.

Lesley M. Wilson, daughter of Mr. and Mrs. Leo E. Wilson, GD/Fort Worth.

General Atomic—Charles W. Loomis, son of Dr. and Mrs. Charles C. Loomis; Bruce Stewart, son of Dr. and Mrs. Hugh B. Stewart, General Atomic.

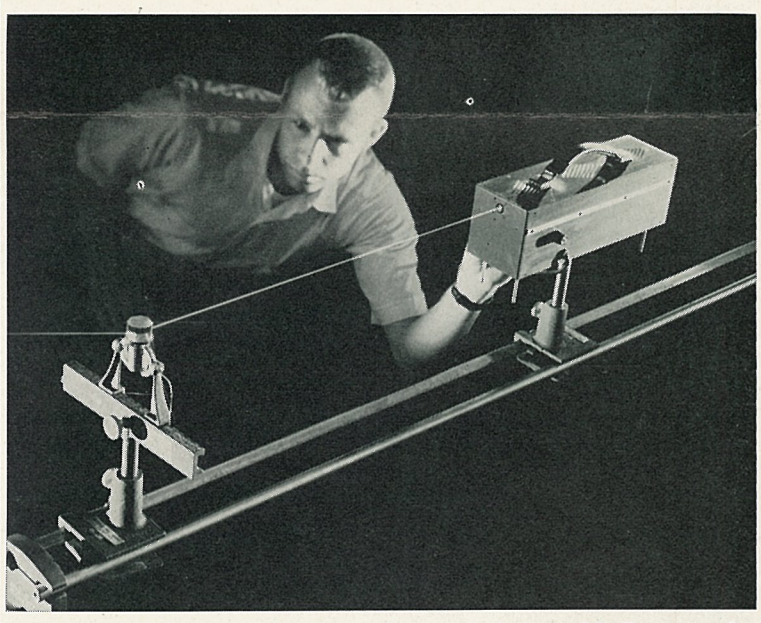
Lawrence J. Johnson, son of Mr. and Mrs. Roger L. Johnson; Christine Tubbs, daughter of Mr. and Mrs. Douglas C. Tubbs, of GD/Pomona.

GD/FW Men Elected To ASME Positions

W. L. Nix, Dept. 65-2, has been elected chairman of West Texas Chapter, American Society of Mechanical Engineers, for 1964-65.

Billy J. Pendley, Dept. 263-7, was voted secretary for the coming year.

Other GD/Fort Worth employees assuming new roles in the society include: J. I. Koger, Dept. 61-3, director; LeRoy E. Erwin, Dept. 86-0, RACON representative; Eliot E. Kerlin, Dept. 64-2, membership development; James E. McCann, Dept. 16, publicity; and L. D. Pendleton, Dept. 65-2, finance.



LASER SHOWN—Lasers have been studied at GD/Pomona for several years for use in optical radar, missile guidance and space communication. In an exhibit at Science USA during Los Angeles County Fair, Sept. 18-Oct. 4, GD/Pomona booth will illustrate laser use in bouncing phone conversations off moon. In photo, C. H. Parks of advanced techniques (Dept. 6), adjusts a laser beam prior to tests.

General Dynamics Reliability Panel to Hear NASA Speakers

General Dynamics Panel on Reliability will hear outstanding government officials define Department of Defense and National Aeronautics and Space Administration reliability requirements at the Corporate meeting this month in Washington, D.C.

J. Condon, NASA director of reliability and quality assurance, will speak on NASA's reliability and quality assurance requirements for research, development, and production at the first luncheon session Sept. 28, announced J. Y. McClure, GD director of reliability, quality control and value control.

Col. O. C. Griffith, deputy director-Office of Technical Data and Standardization Policy, will discuss DOD technical data and standardization program as Sept. 29 luncheon speaker.

Only other outside speaker at the three-day meet, which will bring together reliability representatives from GD divisions, is T. K. Jones of Boeing Aerospace Division whose subject will be "Redundance/Maintenance Cost Optimization for Manned Space Stations."

McClure will give a progress report on General Dynamics reliability efforts. Other GD men who will present various facets of reliability and quality activities from their respective divisions will be G. E. Owen and N. H. Simpson of GD/Fort Worth; P. I. Harr, E. S. Winlund, and W. E. Magnuson of Astronautics; G. M. Ellis, A. S. Freedman, J. C. Bear of GD/Pomona.

When telephoning, never mind the weather. Get to the point. Telephone time costs money.

Electronic Circuits Analyzed With New Computer System

A totally new tool became available this year to GD/Astronautics engineers, when members of the division's numerical analysis group (Dept. 595-0) teamed with IBM to introduce and extend a computerized method of electronic circuit analysis.

Known as ECAP (for Electronic Circuit Analysis Program), it affords wholly new capabilities through a user-oriented computer "language" which allows the engineer to set up his own circuit problems for solution.

ECAP was developed by the computer firm for use on its IBM 1620 machine. At GD/Astro, through the efforts of R. A. Elliott and Roger Moore of Dept. 595-0, in cooperation with IBM Representative Ralph Wilson, the digital program was adapted for use on the much faster IBM 7090.

ECAP has many uses, related variously to reliability studies, design checking and circuit "trouble shooting." It provides a thoroughness of analysis heretofore impossible, and achieves this with great speed and economy.

At present, the engineer may choose AC, DC or transient analysis of circuits.

Using a schematic diagram, the engineer sets up equivalent circuits for the active elements, using (basically) passive elements plus controlled current and voltage sources.

Circuit elements are conventionally designated (R, C, L, etc. —and even by part identification number, if desired), and any unit values may be used so long as this use is consistent. Each circuit is then broken down into numbered nodes and branches and listed, using a simple coding technique, as computer inputs.

At present ECAP method can handle a circuit of 20 nodes (plus zero reference) and 60 branches. Forthcoming improvements will expand this capability.

A typical analysis possible with the DC program involves a nominal solution with node, element and branch voltages, branch and element currents; partial derivatives and sensitivities; power losses; a "worst-case" solution; standard deviation; parameter variation.

Elliott and Moore have been working on the technique for about two years, and see still greater refinements and adaptation of the program in the near future.

Moore has developed an AC program which permits inclusion of transistors without the need for preparing equivalent circuits, and which will additionally plot response curves.

Elliott foresees complete circuit synthesis, as well as an up-coming adaptation to the technique to permit digital computer analysis of hydraulic and pneumatic systems.

In use since early this year, ECAP was applied to analysis of GD/Astro's SLV autopilot, and a program for Centaur electronics is forthcoming.

Speed and economy of ECAP are demonstrated in transient analysis of a seven node, 12 branch circuit, for example, which requires only one to two milli-hours of computer time.

To date, two classroom sessions have been conducted to familiarize GD/Astro engineering personnel with ECAP. Moore has invited those wishing to learn more about the program to contact him at GD/Astro main plant, ext. 2810.

NEW TOOL—R. A. Elliott, left, Roger Moore and Ralph Wilson, IBM representative, discuss ECAP (Electronic Circuit Analysis Program) with Dr. W. J. Schart, GD/Astro chief of numerical analysis. User-oriented computer method of analyzing electronic circuit is now available to GD/Astro engineering personnel.

PROUD MOMENT—Presentation of GD/Astro July Craftsmanship award last month to sheet metal and processing, Plant 19 (Dept. 714) was proud moment for employees whose efforts earned the hard-sought honor. Their enthusiasm (lower photo) is echoed on faces of Rex Grimes, General Foreman E. O. Johnson, and Joe Friel in top photo after plaque was presented by E. D. Bryant, right, vice president—operations.

Business Courses Will Help To Keep up With the Times

(Continued from Page 1)

educational services join forces with University of California Extension to set up a new series of business management courses.

For the first time University of California business systems management accredited courses will be given in-plant at both Astro and Convair if demand warrants. They will be open to all GD people, as well as to the general public.

Automated business methods are here to stay, and there is no way to escape, stress J. A. Croft and H. W. Rubottom who head up Astro and Convair educational services.

"These courses provide a practical and concrete means to keep up and even stay ahead of the explosively-developing business management field," they said as they urged all GD data processing, business system personnel, and others involved in any business function to increase their knowledge of modern concepts and methods.

J. H. Johnson, Astro director of management systems, and G. O. Withem, Convair chief of data processing, are backing the new program to the hilt. Both kicked off the program in separate meetings with their people and heads of departments at the two divisions.

A survey of interest is now under way to establish how many will enter the following basic and intermediate courses: Business Data Processing with Unit Record Systems, Introduction to Data Processing and Computer Programming, Electronic Data Processing Economics and Feasibility Studies, Systems and Procedures, Introductory Mathematical Analysis for Business, Business Communications, Problems in Human Relations.

Classes will meet from 5 to 7:30 p.m. at in-plant locations.

Tuition will range from $40 to $50 per course, however, tuition refunds are available to General Dynamics students.

Most of the credits earned from the courses may be applied toward Business Administration degrees and all who complete 24 units will receive Phase I Professional Designation certificates in Business Systems Management from the University. Advanced courses will be added later to lead to Phase II certificates.

Application forms and program brochures now are available at any educational services office at Convair Plant 1 and Astro Plant 71 and Plant 19. Registration deadline is Sept. 24, and admission charge is $10.

For detailed information call Wayne Turner at Convair educational services, ext. 491, Plant 1; or Warren Newton, Astro educational services, ext. 2213, Plant 71.

Jim Hardison Slated For Explorers Meet

GD/Convair's Jim Hardison, veteran leader of GD tours into Mexico, will be guest speaker at the 7:30 p.m., Sept. 16 meeting of ARA Explorers Club in ARA Clubhouse.

Hardison's program will include slides, movies and "south-of-the-border" folk music.

Another destination for this month's Explorers field trip originally slated to the cliff "geysers" at Puerto Bunda Bay, Baja California, is now under consideration by club officers. The "geyser" visit will be delayed until later.

Renz Wins Third Skate Championship

An Astro son, John Renz Jr., 19, whose father is in Dept. 250-1, last month won his third annual national roller skating championship (men's singles-free style) in competition at Louisville, Ky.

The 1964 win is another in a long string of victories for the younger Renz. Last November he copped the international title by pinning the first defeat in several years on West Germany's Karlheinz Losch **(GD/NEWS, Nov. 27, 1963).**

GD/ASTRO GROUP WINS INFORMATION AWARD

GD/Astronautics' technical data systems (Dept. 591-5) under Carl Dragila, chief, has been cited for an honorable mention award for records control and information systems by Systems Magazine, an electronic data processing publication.

GD/E LINKSMEN SET VALLE VERDE MATCH

GD/Electronics men will travel to Valle Verde Country Club for a GD/E Men's Golf Club tourney Saturday, Sept. 19. Tee-off time is scheduled for 8 a.m.

Sign Promptly For Big Bear

Bookings for General Dynamics Ice Skating Club's "Autumn Weekend at Big Bear Lake" are going fast, and GD/Astro, GD/Convair and GD/E employees wishing to take part in the weekend of fun are encouraged to sign up promptly.

The event is slated for Sept. 25, 26 and 27 at Big Bear's Wawona Lodge, where accommodations include hotel rooms with private bath for two to five persons, and housekeeping cabins for families.

For $12 per person (half-price for children under 8), weekenders receive two nights' lodging and most meals, including a Saturday evening barbecue. Transportation must be arranged on an individual basis.

Activities include swimming in the Lodge pool, an informal dance Saturday night, plus cycling, horseback riding, hiking, and of course, ice skating.

Reservations will be accepted at employee services offices at Plants 1, 71 and 19 with full fee payable at time of registration. Barbara, ext. 4041 at Plant 71 can provide more information.

288 Ties Spark Pistol Club Action

A score of 296 of 300 points earned first-place master class honors for Al Schindler in a recent .22 Police Course match fired by ARA Pistol Club.

Warren Ranscht and Don Smock placed second and third in this bracket with scores of 288, 12x and 11x respectively.

In expert class, Bill Dittmann led with 290, while 288 was again a "magic number" for Carl Jensen (11x) and John Bennett (8x). Bill Worthington (273) and Bill Winchell (259) led sharpshooters.

Standings in a companion Center Fire round placed Ralph Sanderlin in the lead with 272 (6x) over J. S. Knutson, 272 (2x). Schindler scored 269 and Ranscht, 266.

Next club matches will be held at 9:15 a.m., Sept. 13 at San Diego Police Pistol Range.

Adult Classes Open For Fall Semester

Fall semester classes for adults start next week (Sept. 14) at San Diego Evening High School, 12th and Russ Sts.

Standard high school courses are scheduled for those who wish to complete requirements. Review courses are offered in such subjects as reading, mathematics, typing. Specialized courses are given in vocational guidance and civil service review. Instruction in French, Italian, Russian, and Spanish is available.

Information and class schedules may be obtained by calling the school office, 233-7402.

Salvage Schedule Is Announced

GD/Convair's salvage yard will be open for employee sales this coming Saturday morning, Sept. 12.

Astro's salvage yard at the Kearny Mesa plant will be open the following Saturday (Sept. 19) from 8 a.m. to noon.

Navy Reserve 'Back to School'

Naval Reserve officers among General Dynamics employees in the San Diego area will go "back to school" this week, when a preliminary meeting of fall semester courses of Naval Reserve Officers School (NROS 11-2) is convened.

Designed to provide reserve personnel with instruction necessary to maintain and improve their professional capability, NROS courses range from specifically military subjects to those applicable to broad areas of business and technology.

Ross A. Evans (Cdr., USNR), manager of personnel administration at GD/Astro, is commanding officer. Other GD men serving in staff or faculty positions are Donald P. Germeraad (Capt. USNR), Gerald D. Schmidt (Col., USMCR), Richard G. Stoklosa (LCdr., USNR), Richard G. Wilson (Cdr., USNR), and Emory W. Thurston Jr. (LCdr., USNR), all of GD/Astro; and George T. Schnurer (Lt., USNR), of GD/General Atomic.

This semester, NROS offers 18 courses with classes meeting weekly at five locations throughout San Diego County.

Kickoff session will be held at 7 p.m. tomorrow (Sept. 10) in the auditorium (R-4) at U. S. Naval Training Center. Reserve officers have been invited to attend for purposes of counseling and registration, and should enter NTC via Gate 6.

S-C Facility Hosts Guests From Japan

Members of the Japan Management Association were guests last month for a one-day visit to GD/Stromberg-Carlson San Diego facility, with E. F. Carey Jr., assisted by Yoshiyaki Tamura of S-C, as host.

The agenda included presentations by C. V. Shannon, data products resident manager, and Paul Athan; service bureau demonstrations of the S-C 4020 computer-recorder and S-C 3070 electronic printer by Al Aron; plant tour featuring the S-C 1090 computer display console and S-C 4400 microfilm printer conducted by Ed Bates.

Included on the program was a presentation on electronic data processing as practiced at GD/Astronautics, given by Roger Reifel and W. F. MacDonald of GD/Astro Dept. 591-5.

UAIDE Meeting Hears GD Men

General Dynamics people from Astronautics, Stromberg-Carlson, and General Atomic delivered papers at the 1964 annual UAIDE meeting in Los Angeles, Aug. 12-14.

K. Leon Montgomery of GD/Astro, outgoing secretary of the organization for Users of Automatic Information Display Equipment, was moderator of the Stromberg-Carlson panel discussion on product development, which followed a discussion of S-C 4400, new commercial microfilm printer, by S-C's H. W. Holmerud.

Panel members, all from S-C data products at San Diego, were Holmerud, Ed Bates, Bert Frawley, Jake Konen, Si Viejo, Ed Wright.

Mary Lee Skinner of General Atomic spoke on "Applications of the S-C 4020 Plotter to High Energy Fluid Dynamics Calculations," at the Aug. 13 session. Topic of Robert C. Foster of S-C was "Multi-Level Logic Display." Richard F. Klawa, GD/Astro, gave a paper on "Processing and Display Research of Tiros Satellite Data," and Thomas B. Packard of S-C talked on "VCPS, Character Plotter and Column Printer."

H. E. Pietsch of GD/Astro served as UAIDE president during the last year.

Shooter Pool Grows For Coming Contests

Don Estes of Lakeside came close, but not quite close enough, to taking home the pot at CRA Gun Club's Troy trapshoot Aug. 23.

The one bird Estes dropped in handicap competition cost him $257.50.

Softening the blow a little, his 49—25 straight in 16-yd. and 24 in handicap—is the record for a Troy shoot. Estes got $12.50 for his prowess, $8.25 as high scorer of the day and half the $8.50 prize money for 16-yd., when he and Don Jones of San Diego both went 25 straight.

Shooters at the next Troy event Sept. 27 will be aiming at $178.75, now in the pool for combined perfect record, and $78.75 for handicap, plus fees for that day.

Other coming Gun Club events, open to the public, are a registered skeet shoot on Sept. 20 and a night registered ATA trapshoot on Wednesday (Sept. 23).

Fishermen Slate Meeting Sept. 23

ARA Fishing Club has postponed its meeting scheduled Sept. 2 until Sept. 23, 7:30 p.m., in ARA Clubhouse.

At that session, a Salton Sea trip on the agenda for October will be discussed, and awards will go to members landing the largest catches during July and August.

TRAVELERS—General Dynamics group which returned Sunday from two-week ARA-CRA tour of Old Mexico by train, shot before departure from Mexicali Aug. 21. This is fourth Mexican trip conducted for GD folk by Jim Hardison of GD/Convair, far left in photo.

GD/E PICNIC TIME—Over 400 GD/E and S-C people in San Diego gathered at CRA's Pine Crest resort Aug. 29 for their first all-facility family picnic. At left, Ernie Paul emcees raffle with Howard Musick pulling numbers from bucket; in shot at right John Lombardo, Stromberg-Carlson executive vice president, steps out in front of crowd watching activities. Part of committee directing arrangements (center) are: back row from left, George Elmore, Harold Palmer, Jim Wheeler, F. B. Wagner, Wally Forester, Ray Mattis, George Oatman, Fred Nuzzo, Paul, chairman; kneeling, Ada Buss, Shirley Reeves, Loretta Boyd, Kelly Patton.—Photos by Bill Zimmerman.

Sports & Recreation

Industrial Net Championships Begin This Month at Morley

Industrial Tennis Championships are scheduled for Sept. 26, 27, Oct. 3, 4 at Morley Field, Balboa Park, sponsored by IRC in cooperation with the city's park and recreation department.

The tourney is open only to employees, with CRA paying half the fees of Convair, GD/Electronics, and Stromberg-Carlson contestants. Dependents are not eligible.

Entry fee of $3 for singles will be $1.50, and doubles fee of $4 will be cut to $2 through CRA underwriting.

No "and partner" entries will be accepted and players must team up with employees of the same plant.

Trophies will go to winners and runners-up in singles, doubles, and to the winner of the consolation singles event.

Entries must be into Pete Beyrer of CRA, ext. 1245, by Monday (Sept. 21). Beyrer will, in turn, submit sign-ups and entry fees to Ralph C. Smith of park and recreation department, who is directing the tourney.

Sicilian Visit Realizes Dream

Josephine Albano of GD/Convair is helping her parents realize a lifelong dream as she accompanies them back to Sicily for their first trip home since they left 50 years ago.

Her mother, Mamie, came to the United States at 18 and her father, Stephen, was in his early 20s. They've never been able to visit their home city of Palermo, nor have they seen their family, in all the years since.

Both will be greeted by brothers, now in their 80s, when they step off the plane at Palermo this week.

Jo, an accountant in Convair cost accounting for 12 years, made the trip possible when she took over the planning this spring and set a definite departure date. They enplaned from Lindbergh Field Aug. 28 and left New York the first of last week after a few days in Washington, D. C.

Their itinerary was to take them to London, Paris, Geneva, Venice, Florence, and Rome en route.

Jo will jet back at the end of her three weeks vacation, leaving her parents behind for a couple of months longer to get acquainted with their families.

BON VOYAGE—Josephine Albano of GD/Convair (center) and parents are bid farewell by other Albano girls, Angeline and Ruth, on trio's departure for Sicily last seen by the Albanos 50 years ago.

Winter Keg Season Starts This Week

CRA winter keg season is getting under way this week with nearly 350 bowlers entered in 84 teams in eight leagues.

A 10-team Mixed Fivesome handicap league began rolling last night (Tuesday) at University Lanes.

S-C 8-team Mixed Foursome handicap league kicks off tonight (Wednesday) at Pacific Recreation as does the top 910 Men's Scratch Fivesome (10 teams) at La Mesa Bowl.

Three leagues start tomorrow: GD/E Mixed Fivesome with 10 teams and Convair's 12-team Scout League, fivesome, both at Frontier Lanes; and Engineering Mixed Foursome (12 teams) at Victory Lanes.

Friday the Men's Scratch 510 Trio league of 10 teams and Women's Doubles, 12 teams, will bowl at Pacific Recreation.

All leagues start at 6:30 p.m., except the La Mesa league at 9 p.m.

There are still places in most leagues. Entries are being taken at CRA office, ext. 1245, Plant 1; Mike Brooks, 469-8793; or Jim Hayman, 466-1262.

Chavez Ravine Is Goal of Trip Slated Sept. 20

Ball fans at Convair, S-C, GD/Electronics have a couple of days left to sign for the Sept. 20 trip to watch the Dodgers play the league-leading Phillies at Chavez Ravine stadium.

Pete Beyrer of CRA has made arrangements for a chartered bus to take the rooters to Los Angeles if at least 40 pay their money by this Friday (Sept. 11).

Cost of round-trip and game admission is $5.25 each.

Departure time is 9:15 a.m. from Bldg. 19 parking lot. Return time is about 6:30 p.m. Rest stops are made at San Clemente and no alcoholic beverages are allowed on the bus.

Two busloads made the last CRA-arranged trip Aug. 23 to watch the Dodgers break their losing streak by edging past Cincinnati, 1-0.

Sign-ups and money must be into the CRA office, Bldg. 32, Plant 1, this week, said Beyrer. He can be reached on ext. 1245.

'Strikers' Win Thurs. League

"Strikers" won the Convair Thursday night Scout League bowling at Frontier Lanes at close of summer season, reported Co-Commissioners Mike Brooks and Jim Hayman.

Team members were Jean and Bob Sanders, Irene and Walt Duzyk, and Helen Sievers.

Engineering foursome competition, Thursdays at Victory Lanes, was won by the team of Grace and Sam Catalano and Corinne and Vince Cernuto.

"Hits and Misses" led the GD/E league Thursdays at Pacific Recreation. It was made up of Gloria and Walt Mahoney, Emma Webb, Charlie Mickevlie, and Max Frank.

GD/E Plant 2 bowling league, Wednesdays at Pacific Rec was won by Curley's Crew.

"No Doubts" was high scorer in the 800 scratch league Fridays at Pacific Rec. Team members were Beverly and Stan Smith, Louise and Warren Marbara, and A. V. Black.

Sign by This Friday For Snow Ski Party

Reservations to the CRA Snow Ski Club's Sept. 12 all-day beach party must be in by this Friday, if members want their names in the pot, said Commissioner Joe Harris.

Harris said that only as many steaks will be purchased as there are reservations. He is taking calls at his home phone, 284-0278.

Snow skiers from Convair will join Don Diego club members at Silver Strand State Park for their summer skiing event — on water. Gathering time is set for 11 a.m. with the steak fry at 5 p.m. Cost is $2 each.

CRA Calendar

(Convair Recreation Association has some 30 activities in operation for Convair, GD/E, Stromberg-Carlson people. For information call CRA Headquarters, ext. 1245.)

★ ★ ★

AEROMODELERS — Flying sessions Saturday and Sunday mornings, 8 a.m. to 1 p.m., Clairemont Flying Site.

BOWLING — Few openings still to be filled in winter leagues, starting play this week. Call CRA office, ext. 1245, Plant 1; Mike Brooks, 469-8793; Jim Hayman, 466-1262.

CAMERA CLUB — Joint CRA-ARA meeting Sept. 20, 7:30 p.m., Photo Arts Bldg., Balboa Park.

COIN CLUB — Meeting Sept. 17, 7:30 p.m., Convair main cafeteria, Pacific Hwy.

FENCING — Workouts and instruction each Friday night, 7-10 p.m., YWCA, 10th & C Sts.

FISHING CLUB — Regular meeting Sept. 15, Gillespie Field Clubhouse. Potluck dinner at 6:30 p.m., meeting, 7:30 p.m.

Minutello's 76 Low at Coronado

Ray Minutello (Dept. 6) and Logan Jenkins of GD/NEWS shared honors in CRA's August links tourney at Coronado with Minutello stroking a 76 for low gross and Jenkins scoring 70 for low net in first flight.

Al Reiter of Dept. 115 was runner-up in low gross standings in the 0-14 flight with a 78, while Bill McCarthy of Dept. 6 was one stroke behind Jenkins for second low net spot.

In the 15-20 flight George Watson (Dept. 400) scored 84 for low gross. Len Terrien (Dept. 115) was second with 86. Bob Fagan of Dept. 6 had 70 for low net and Ralph Welch, retired, shot a 73 for second low net.

In the 21-and-over flight Tobe Hundley and Gerry Nuss, both Dept. 400, stood one-two in low gross with 93 and 95 respectively. Mike Gonzales (Dept. 34) held low net, 66, and Bill McColley of Dept. 91 was second low net with a 69.

No CRA golf tourney is scheduled for September.

ROAD RUNNERS SET FAMILY REUNION

A reunion outing is set for CRA Road Runners, past and present, this coming weekend, Sept. 11-13.

All former members and their families are invited to join Convair trailerites at Pine Crest, CRA mountain resort near Julian. Maps and directions have been mailed to all Road Runners.

A Sunday picnic will be held at 1 p.m. Sept. 13 instead of the usual Saturday potluck, said Carl Scholl, club president. Scholl has taken on the chore of wagonmaster for the gathering.

Camping fee is $1 per vehicle for one or two nights, 50 cents a night thereafter.

GUN CLUB—Registered skeet shoot, Sept. 20; registered ATA night trapshoot, Sept. 23; Troy trapshoot, Sept. 27, all at Gillespie Field Range.

HUNTER SAFETY — Register for three-week course by calling 448-1825.

ICE SKATING — Autumn weekend outing to Big Bear Sept. 25-27. Make reservations at CRA headquarters, ext. 1245, Plant 1. Thursday ice skating sessions for GD people, Mission Valley Ice Plaza, 6:30-8 p.m.

MODEL RAILROAD — Work nights, Fridays, 7:30 p.m., open sessions, Sundays, 1-4:30 p.m., House of Charm, Balboa Park.

MOVIES — Reduced prices for GD people at State Theater, Euclid and El Cajon Blvd. General admission: adults $1; children, 35¢.

PISTOL CLUB — Club shoot Sept. 13, 9:15 a.m., San Diego Police Pistol Range, Federal Blvd. and Home Ave.

RADIO CLUB — Next meeting Sept. 17, 8 p.m., Harbor Drive club headquarters.

ROAD RUNNERS — Meeting Sept. 17, 7:30 p.m., Gillespie Field Clubhouse. Reunion outing to Pine Crest Sept. 11-13.

ROCKHOUNDS — Lapidary workshop at Gillespie Field reopens tonight (Sept. 9), 7-9 p.m. Meeting tomorrow (Sept. 10), 7:30 p.m., Gillespie Field Clubhouse.

ROLLER SKATING — Free skate night Sept. 21, Skateland, Front and G Sts. Tickets at employee services.

SNOW SKI CLUB—Beach party and steak fry this Saturday (Sept. 12) at Silver Strand State Park.

SOFTBALL — "Slow pitch" play-offs for league championship scheduled this week.

SPORTS CAR CLUB — ARA open "La Separateur" rally Sept. 13, leaving ARA Clubhouse parking lot at 10 a.m. Call Jack Gallant, Astro Plant 71, ext. 2028, or Dennis Scannell, Astro ext. 1316.

SWIMMING — Free family swim night Sept. 19 Mission Beach Plunge, 7-9 p.m. Tickets at employee services.

WATER SKI CLUB — Skiing weekends on Mission Bay on phone-call basis. Call Gene Sevigny, ext. 1778, Plant 1.

Mgt. Clubs to Enter Bowl League Teams

Twelve teams will shatter the pins as GD Management Club bowling league swings into play next Monday evening (Sept. 14) at Parkway Bowl, near El Cajon.

Convair Management Club is fielding 7 teams; GD/E, 4; and Astro, 1.

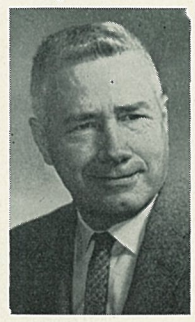
There are still a few openings on the teams which will go to the first who call either Dave Pearce at GD/E, ext. 1975, or Vic Baros, Convair, ext. 1551.

Teams will bowl at 6:30 p.m. each Monday night.

COMMUNICATORS CONFER — GD/Convair division president, J. H. Famme (standing), welcomes some 30 communications specialists from General Dynamics divisions to San Diego where they gathered Aug. 11-13 for second Corporate conference on mutual problems and objectives. Seated at Famme's right are R. E. Bennis, GD manager of wire communications, and C. M. Barlow, director of administrative services. In far right foreground is R. I. Morse, West Coast communications coordinator.

Keach Rejoins Dynamics In Procurement Post

CHARLES G. KEACH, formerly procurement manager at GD/Astronautics, has rejoined General Dynamics, this time in Corporate Headquarters, New York City, reporting to Max Golden, vice president.



C. G. Keach

He will coordinate division procurement practices.

Educated at UCLA and University of Southern California, Keach was with Northrop Aircraft Co. for 17 years, eventually as chief purchasing agent. He joined Astronautics in 1959 and returned to Northrop in 1962.

ERNEST F. HAFEMEISTER has joined the staff of the International Department at Corporate Headquarters as manager of telecommunications sales-international, reporting to C. Anthony Chapman. A World War II Signal Corps officer, Hafemeister until recently was director of marketing, telecommunications for IT&T.

WILLIAM LASHBROOK, formerly North American Aviation, Inc. chief of proposals and contracts Apollo, has joined General Dynamics as a member of the Corporate pricing staff, reporting to Glenn Keach. He was previously with Ford Motor Co.

JOHN KUDA has joined Corporate Headquarters as a cost analyst, William T. Lake, comptroller, announced.

A graduate of University of Connecticut with MBA from Wayne State University, Kuda was formerly controller for C. J. Bates & Son, and has been with Curtiss-Wright and Ford Motor Co. He was a WW II infantry officer in the ETO, several times decorated.

KARL MEYER, formerly of Electric Boat systems and procedures, has transferred to Corporate Headquarters, reporting to Robert E. Bennis, manager of wire communications. Meyer is a graduate of Massachusetts Maritime Academy and Harvard School of Business.

DANIEL IGO, formerly chief patent counsel for Scott Paper Co., has been named patent counsel in Corporate Headquarters, reporting to Roger I. Harris, vice president and chief counsel.

A 1937 graduate of Pennsylvania State (BA, physics-chemistry) with LLB from Georgetown University, Igo has engaged in private practice and previous to joining Scott Paper was general counsel for Lukens Steel Co.

* * *

Patented Mill Shaves F-111 Honeycomb Parts

A milling machine that shaves off aluminum honeycomb core like a popular electric razor and another that gives "flat tops" are among the devices used to carve out F-111 air foil configurations.

Such ingenious and unique techniques are dictated by the large number of unusually shaped F-111 honeycomb bonded assemblies — including tapered, curved, slanted, rounded, and variations of all these.

"We used a lot of honeycomb panels on the B-58," explained D. O. Burch, Dept. 31 general foreman, "but the Hustler's honeycomb parts weren't nearly as complex as the F-111's."

H. E. Spencer and H. R. Cook, manufacturing research engineers, teamed with tooling personnel to develop the company's newly patented Air Foil Mill—the "razor."

It consists of a steel drum about eight feet in length and 10 inches in diameter. The drum has settings for 201 cutters. Each of the cutters — called "bologna slicers"—is 1½ inches in diameter, and each is rotated by a small air motor, which feeds off air pressure blown through the steel drum.

The honeycomb part to be milled is placed under the drum cutter on a fixture. It is guided under the cutter at about an inch a minute by a remotely controlled, push-button console. "Route" of the cutters is determined by two cams on either end of the mill fixture. As wheels on either end of the steel drum roll over the shaped cam, the cutters whittle away at 20,000 rpm—about 200 turns a second!

Actually, there are eight rows of cutters around the drum. Each row is staggered, so that each row of cutters overlaps the other. Result is a 100 per cent complete cutting pattern, with the machine making a straight-line cut across the honeycomb core in a single rotation of the drum.

The Air Foil Mill cuts in "straight-line" fashion. This means that the core can be contoured in virtually any manner, but only in one direction—laterally.

Other F-111 aluminum honeycomb cores are even more intricately shaped. Some, for example, require contour in both directions — longitudinally and laterally—with variations either way. The effect, in some instances, is like the topography of a rolling countryside.

Manufacturing engineers at GD/Fort Worth solved this problem by improvising on a standard Rockford conventional open-side planer. The solution was offered by a "tracer" device, attached to and synchronized with the planer's cutter.

To mill the part, a pattern identical to the honeycomb part is placed on a fixture next to the part. As a disc-shaped tracer head moves up and down the surface of the adjacent form, the planer's cutter makes identical movements — and cuts — on the honeycomb core block. It moves at a pre-set rate, depending on severity of contours.

Formerly, honeycomb cores requiring this sort of complex cut had to be filled with plastic and machined on conventional duplicator-type machine tools at slow cutting rates.

Still other intricately shaped air-control panels for the F-111 necessitated even more new machines—namely for conical and circular-shaped pieces.

In these cases, engineers modified a conventional traversing plate saw by adding a vertical router motor which uses a three-inch cutter. The machine can cut pieces up to nine feet long and six inches in diameter.

Pneumatically driven, the cutter skims across the top of the honeycomb at a precisely regulated speed. Thus the operation was tagged "flat top."

Size and shape of the honeycomb core is determined by cams located on either end of the honeycomb core.

With all this superb new machinery, some hand work is still required on most pieces that emerge from Dept. 31's full-depth honeycomb core section.

Skilled technicians use small hand-cutters to route out small indentures and cut along edges where reinforced skin is to be placed.

CURRY TO ADDRESS FORT WORTH NAA

R. P. Curry, manager of FW business center, will speak to Fort Worth Chapter, National Association of Accountants, Sept. 17 at Worth Hotel, on "Data Processing—What to Expect in the Next 10 Years."

D. K. Hall Tel-4 Rep At Cape Kennedy

D. K. Hall, Convair senior design engineer, is now in residence in the Cape Kennedy area as the division's first technical representative for the TEL-4 program.

The GD/Convair office is located on Merritt Island, Fla., in the TEL-4 building, site of the telemetry receiving and recording station to support and monitor Air Force launch operations. Convair is providing and integrating advanced telemetry instrumentation under a contract from Pan American World Airways, Inc.

Within the next few months around 40 Convair technicians, assemblers, installers and 15 engineers will be based at Merritt Island.

GD/E Equipment Shown at Dayton

GD/Electronics-San Diego is exhibiting two of its major products at Aerospace Systems Division, Wright-Patterson AFB, Dayton, Ohio, throughout September.

On display are GD/E's Terrain Following Radar, a compact system which allows aircraft to fly safely at pre-selected altitudes over any terrain in zero visibility, and the Aircraft Station Keeper (ASK), a radar system which enables aircraft to fly close formation under low visibility conditions.

Famme Attends Navy Review

J. H. Famme, GD/Convair division president, was guest of honor at ceremonies marking the 122nd anniversary of the Navy Medical Corps on Aug. 28 at the San Diego Navy Training Center. Famme was in the stand with Capt. Ralph Volk, the Center's senior medical officer, reviewing officer at the Recruit Brigade Review, and presented awards to honor recruits.

People Mobility

Interdivisional Transfers

(Following are recent personnel transfers among General Dynamics divisions. In parentheses are dates when individuals joined the company.)

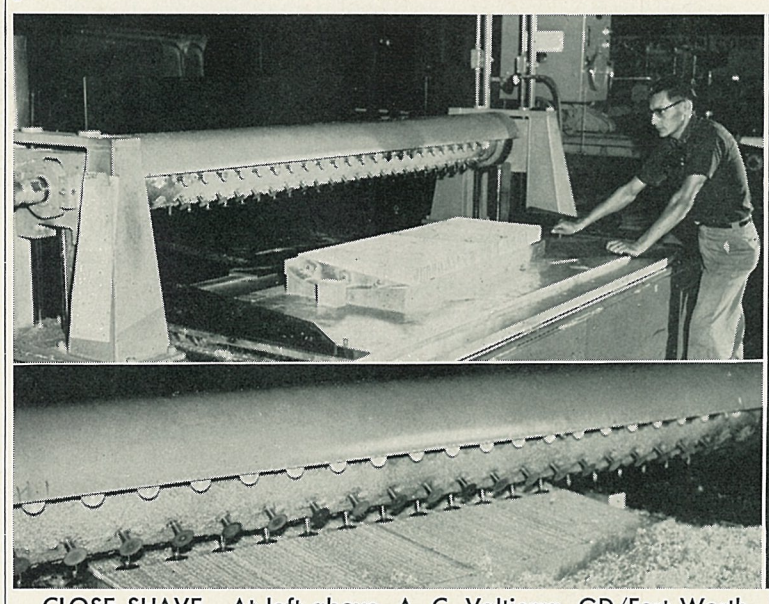
JOHN E. JOHNSON (1956) from GD/Convair to engineering, Electric Boat; **ROBERT L. HAYES** (1956) from GD/Astro to Convair logistics support; **WILLIAM E. HOFFMAN** (1956) from Astro to Fort Worth manufacturing control; **PAUL B. LONG** (1954) from Astro to Fort Worth general purchasing; **ARMISTEAD WHARTON** (1947) from Stromberg-Carlson to GD/Electronics-Rochester.

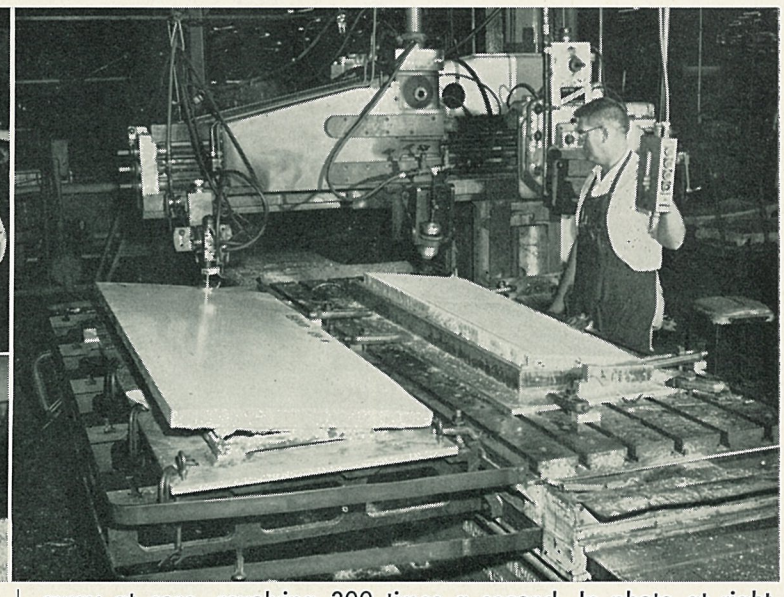
CHESTER L. GUERRY JR. (1951) from Astro to support equipment design, Fort Worth; **WESLEY F. DOBBINS JR.** (1959) from Astro (Roswell) to Fort Worth systems technology; **V. MILLMAN** (1954) from Convair to General Atomic; **MARTIN MOORE** (1960) from Astro (Roswell) to Fort Worth systems technology; **RODNEY W. STREED** (1948) from Astro to Convair development project engineer; **ALBERT S. FREEDMAN JR.** (1962) from GD/Electronics-San Diego to Pomona reliability group engineer.

ROBERT S. DONALDSON (1960) from Astro (Abilene) to Fort Worth subcontract management; **D. A. DOERING** (1957) from Convair to General Atomic; **DENVER L. YOUNG** (1952) from Convair to Fort Worth maintenance engineering; **MONSITA E. FRANCIS** (1953) from Corporate (Sacramento field office) to Fort Worth subcontract management.

F. M. GRABER (1956) from Convair to General Atomic; **CLIFFORD D. GEER** (1946) from Astro to Fort Worth factory management; **THOMAS O. RIEBER** (1956) from Astro to Fort Worth purchasing; **ROBERT F. STEPHENS** (1950) from Astro to Fort Worth procurement planning and control.

RUSSELL K. BROSCIOUS JR. (1963) from Astro to structures engineer, Convair; **ROBERT E. BOYKIN** (1964) from Astro (Abilene) to planning and controls, Fort Worth; **ERNEST A. SCOGGINS** (1949) from Astro (Vandenberg) to Fort Worth project coordination; **A. L. HOLTON** (1952) from Convair to F-111 tests, Fort Worth.





CLOSE SHAVE—At left above, A. C. Valtierra, GD/Fort Worth Dept. 31 mill machine operator, readies honeycomb core under precision cutters of Air Foil Mill, used to make straight-element line cuts. In close-up below left, 1½-inch diameter cutters whittle away at core, revolving 200 times a second. In photo at right, tracer moves over form shaped like airplane part while cutter at right makes identical movement and cuts honeycomb core block. Operator is Don Keel.

GD

SAN DIEGO EDITION
(Serving GD/CONVAIR
and GD/ELECTRONICS)

GENERAL DYNAMICS NEWS

Vol. 17, No. 20 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, September 23, 1964

COORDINATORS — Corporate "Pot-of-Gold" committee made western swing recently to continue division conferences on techniques. Chairman is H. K. Pedersen, Corporate treasurer, seated right, with John Milling, Convair controller. Standing, from left: John Scott, Fort Worth; W. T. Lake, Corporate comptroller; R. D. Webster, Pomona; J. N. Sowers, Corporate cost analyst; G. W. Zahrte, Convair.

'Pot-of-Gold' Program Seeks Best Use of Cash

A Corporation-wide "Pot-of-Gold" program, aimed at more efficient use of working capital, is under way at all divisions of General Dynamics.

John Sargent

During the last two weeks a Corporate committee, named by John A. Sargent, Corporate vice president-finance, and headed by H. K. Pedersen, Corporate treasurer, has visited a number of divisions to discuss techniques and systems of interchanging ideas among divisions.

Other members of the committee include William T. Lake, Corporate comptroller; W. T. Alvis of Fort Worth division, contract administration; R. D. Webster, of Pomona division, procurement; G. W. Zahrte of Convair, material control.

The committee visited Convair, General Atomic, Astronautics and Pomona divisions earlier this month and expected to hold similar meetings at Electro Dynamic, Canadair, Electronics and Stromberg-Carlson at Rochester, and Electric Boat, with a review of accomplishments scheduled for Fort Worth.

"The fundamental long term objective of this program is to make sure that we are obtaining the most effective possible use of the financial resources that are entrusted to this management by our stockholders," Sargent explained in announcing the program to division presidents.

By improving the use of working capital in the normal course of business within the divisions, funds can be released for use elsewhere, such as the further liquidation of long term obligations and for expansion and growth.

Coordinators have been appointed at all divisions, in most cases the division controller, and targets are being set.

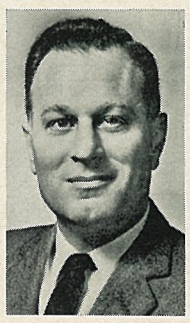
"Achievement of maximum turnover of liquid resources requires the day to day attention of every operating executive," Sargent commented, "starting with the general manager and including contract administration, purchasing, manufacturing, financial, engineering and production planning departments. It requires an industrial engineering approach to determine the ideal conditions to make the most of our 'Pot-of-Gold'—our bank deposits.

"This cannot be a 'one shot' effort but must become a 'way of life' that is just as important to our success as a company as

(Continued on Page 3)

Efforts at Cost Reduction Pay Off During First Half '64

During the first half of 1964, General Dynamics' Cost Reduction/Profit Improvement program has identified substantial "lifetime" savings based on 1,776 specific cost reduction items, Max Golden, Corporate vice president, reported this week.



Max Golden

Savings will be shared, with approximately 75 per cent going to the customer.

Savings are broken down into six categories: value control (required function at lowest possible cost); procurement cost improvement (lowest sound price for only what is needed); employee suggestion/cost improvement proposals; resources economics/conservation (resource cost reduction and waste prevention); management improvement (overall operations); productivity improvement (optimize labor utilization).

In a summary of division efforts during the first six months of this year the largest dollar saving was accomplished in the management improvement category, which accounted for 39 per cent of the program's savings. Value control was next in dollar accomplishment with 24 per cent.

(Continued on Page 3)

Convair Earns Design Order From BUSHIPS

GD/Convair has received a contract to design, fabricate, and test a hydrofoil stabilizing system under a $961,000 contract from the U. S. Navy Bureau of Ships, Washington, D. C.

The research and development program will extend over the next two years.

The Convair set of subcavitating hydrofoil-strut systems will include a fail-safe, mechanical stabilization system, known as HYSTAD (to denote hydrofoil stabilization device). The Convair systems will be designed for application to the U. S. Navy's high-speed hydrofoil test craft, FRESH-1.

HYSTAD is an all-mechanical control mechanism originally conceived by GD/Convair engineers, K. G. Hart, chief of dynamics, and R. E. Leadon. Its function is to provide stability for fully-submerged hydrofoil craft, which are inherently unstable and usually require electronic autopilots. The Convair system would be employed as a back-up to an autopilot.

Feasibility of the HYSTAD has been established during a hydrofoil craft stabilization study performed for BUSHIPS under another contract. This initial program was completed late in 1961.

The current program will include operational tests of the HYSTAD-equipped hydrofoil-strut systems on the Navy's FRESH-1 in early 1966, probably taking place in the Puget Sound area, said E. H. Price of the systems dynamics group, Convair's program leader.

One ship's set will be fabricated. It will include a forward pair of struts and foils, an aft centerline strut, operator's controls, and instrumentation display to record the depth of the foils. A portion, at least, of the fabrication work will be performed at Convair.

The division's marine sciences group will conduct hydrodynamic model tests at the towing basin to develop hydrodynamic characteristics. Principal hydrodynamic designer is Alan Conolly.

Data gathered during tank tests will be used to develop stability derivatives for analogue simulation studies. These mathematical representations of forces acting on the craft in different sea state conditions will help determine final design of the hydrofoil stabilization device.

After fabrication the Convair-developed HYSTAD will undergo engineering tests at the San Diego plant to verify design before installation on the Navy's test craft for open water checkouts.

'Bravo' Braves Fla. Hurricane

GD/Convair's long range telemetering buoy, "Bravo," had its first taste of rough weather a little sooner than expected and before it had a chance to get on-station as it was caught in the midst of Hurricane Dora which struck the Florida coast with destructive force earlier this month.

The buoy, developed by Convair for the Office of Naval Research, withstood the lashing of wind and rain and transmitted data day and night throughout the height of the storm.

"It was an extremely satisfactory shakedown, although a bit more rigorous than we'd planned,"

(Continued on Page 2)

'Miss Torch' Balloting Gets Under Way Today

Balloting begins today throughout all Convair for the girl who will reign as "Miss Torch" during National Fire Prevention Week, Oct. 4-10, as the Convair fire department starts its third annual contest.

Combining beauty with safety, the fire department has chosen three candidates to vie in its queen contest. Meanwhile, on the more serious side, the fire department alerts all employees of the impending safety quiz during the week of Oct. 5-9.

Queen contestants are: Crystal Richards, Dept. 27; Marilyn Sorcinelli, Dept. 119; and Edith Summerfield, Dept. 92.

Crystal and Marilyn were close runners-up to 1963 winner, Bettejeane (B. J.) Shelton, in a hotly-contested race which drew a record of well over 3,000 votes. First "Miss Torch" the year before was Darlene Radick.

Winner of the most votes will receive an individual trophy and present the perpetual trophy to the "cleanest" department with the highest score in the fire safety contest. Holding the trophy now is Dept. 141, won from Dept. 400 last year.

All Convair employees at Plant 1, Rose Canyon, and the Ramp site are eligible to vote, as many times as they like, for their favorite queen contestant. Marked ballots must be dropped into the box at the Convair fire station, or sent to the fire department, Zone 3-10, before the deadline date, Oct. 9.

Results will be known by Oct. 12.

Cleanliness will be the theme of this year's safety contest when Fire Marshal Hugh Rae circulates throughout the plant the week of Oct. 5 to 9. He will inspect the areas and question department personnel on good housekeeping procedures.

Scores will be based on 10 questions, to be answered true or false. Each question is scored 10 points. They are:

1. It is permissible to use wooden or paper trash containers if the containers are clean and sturdy.

2. It is permissible to store clean, folded rags in a flammable-liquid cabinet if all liquid containers are tightly covered.

3. The Fire Department emergency number is 510.

4. Smoking is permitted near duplicating machines after 3:30 p.m.

5. It is permissible to use plastic containers for flammable liquid when the quantity of liquid is less than one pint.

6. If a small fire starts in your area you should notify the Fire Department before you begin trying to extinguish it.

7. The soda-acid fire extinguisher contains water, and is therefore the best extinguisher to use on a wastebasket fire.

8. An area protected by an automatic sprinkler system does not have to be kept as free of fire hazards as an area which is not protected.

9. Fire hazards are the responsibility of the Fire Department, and other employees should not interfere by reporting hazards.

10. After you report a fire to the Fire Department you should be ready to direct firemen to the scene of the fire.

Although this year's contest is emphasizing all-over good housekeeping practices rather than extinguisher use, as in years past, Fire Chief Del Dimmitt says that extinguisher demonstrations will be arranged upon request during the week, Oct. 5-9.

Any employee, or group, may learn how to handle extinguishers during lunch periods, 11 a.m. to 1 p.m., throughout the week. Firemen will be on duty at all times to show people how to put

(Continued on Page 2)

"MISS TORCH" BALLOT

Check name of favorite candidate and mail or take ballot to GD/Convair Fire Department, Zone 3-10, before Oct. 9.

Crystal Richards ..... ☐
Dept. 27

Marilyn Sorcinelli ..... ☐
Dept. 119

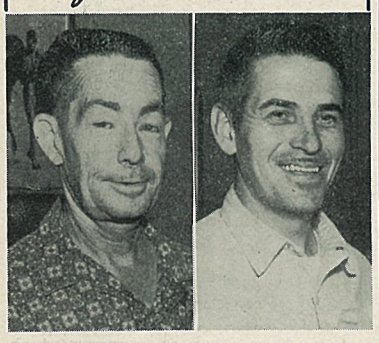
Edith Summerfield ..... ☐
Dept. 92

QUEEN RACE—Convair lovelies from top: Crystal Richards, Marilyn Sorcinelli, Edith Summerfield, offer Convair employees a beauteous choice as balloting starts this week in division fire department's annual "Miss Torch" contest. Winner will preside during Fire Week, Oct. 4-10.

Three Organizations Get Con-Trib Donations

Three charitable donations of $500 each were approved this month by Convair Employees' Con-Trib-Club. Contributions go to the City of Hope at Duarte, San Diego Epilepsy Society for capital equipment, and Arthritis and Rheumatism Foundation-San Diego Chapter for its fund-raising campaign.

Log Book Entries



Sporting new 25-year service emblems at GD/Convair are C. E. Jones, Dept. 401-5, left, and V. J. Rocco, Dept. 115.

Awards

CONVAIR

Employee Suggestion Awards approved for periods ending Sept. 4 and Sept. 11.

Dept. 101, L. G. Farrington, $13.50.

Dept. 102, F. M. Baxter, $100.40.

Dept. 115, D. H. Yaeger, $195.50 (partial payment).

Dept. 119, L. O. Smith Sr., $10; I. D. Bellows, $10; A. R. Rivera and F. Malcangio (joint award), $30.10 each; B. F. Armas, $24.08.

Dept. 131, J. A. Gliebe and P. DiGiulio (joint award), $5 each.

Dept. 141, R. M. Crise, $100 (partial payment); F. J. Hammack and C. E. Rice (joint award), $14.45 each.

Cost Improvement Proposals approved for period ending Sept. 4.

Dept. 3-1, D. D. Dimmitt.

Dept. 115, F. E. Reed.

Service Emblems

CONVAIR

Service emblems due during the period Sept. 16 through Sept. 30.

Twenty-five-year: Dept. 6-53, R. C. Westbrook.

Ten-year: Dept. 6, G. W. Beeman, H. R. Horne, R. R. Koser, N. J. Rutherford, D. C. Smith; Dept. 102, K. M. Harvey.

ELECTRONICS

Ten-year: Dept. 51-00, V. J. Stubbs; Dept. 53-00, E. K. Novak.

Retirements

CONVAIR

BERGER—Clifford F., Dept. 401-1. Seniority date Nov. 9, 1933, retired Aug. 31.

GRAVES—Frances W., Dept. 101. Seniority date Oct. 12, 1950, retired June 20.

HERDER—Ivan E., Dept. 41-2. Seniority date Aug. 1, 1950, retired June 15.

LAMONT—Robert C., Dept. 48-21. Seniority date June 6, 1951, retired May 17.

MARR—Eunice M., Dept. 93-2. Seniority date Feb. 27, 1956, retired Aug. 28.

MUSSELMAN—Floyd J., Dept. 48-2. Seniority date Aug. 1, 1947, retired Sept. 4.

PLYMPTON—Donald E., Dept. 188-1. Seniority date Dec. 26, 1935, retired Aug. 31.

PUSHIE—Alec D., Dept. 31. Seniority date Jan. 26, 1953, retired Aug. 31.

WOLFE—Richard J., Dept. 6. Seniority date Dec. 23, 1940, retired July 20.

Rider-Driver

CONVAIR

RIDER WANTED—Have room for one passenger from Chula Vista to Convair Plant 1, 7 a.m. to 3:30 p.m. shift. H. A. Wilson, Dept. 115. Home phone, 422-4753.

Personals

CONVAIR

Our deep appreciation to friends at Convair for the flowers and sympathy extended to us at the loss of our beloved son, Danny. Your kindness will forever be remembered.

Bud and Leone Taylor, Dept. 14-5.

* * *

I wish to extend my gratitude to Convair friends for the expressions of sympathy received at the loss of my husband, John J. Ford, Dept. 6.

Mrs. John J. Ford.

Magic Violins to Play At Club's Fiesta Dance

An extraordinary musical treat has been arranged for the pleasure of Convair Management Club members and guests attending the club's Fiesta Dance this Friday evening (Sept. 25) across the border in Tijuana.

Magic Violins of Mexico, 10-piece renowned string orchestra, will be featured in an hour-long musical interlude during dancing, announced Board of Control, host of the club affair.

The new Fronton Palacio ballroom will be turned over to the Management Club for the evening. Dancing will be from 8 p.m. to 12:30 a.m. with an intermission at 10 p.m. A light buffet will be served and special features presented by Mexican entertainers.

There are just two days left to get tickets to the south-of-the-border affair.

Tickets at $2.50 a person still are on sale at all plant outlets.

F-106s Chosen For AF Honors

An F-106 unit has been selected by the U. S. Air Force for outstanding achievement in airborne intercept operations during 1964 in competition with supersonic fighter interceptor squadrons throughout the world.

The squadron, the 329th FIS of the Air Defense Command, based at George AFB, Calif., won the Hughes Trophy by compiling the highest competitive score ever tabulated by an ADC squadron for operational readiness and overall efficiency.

The 329th competed with fighter interceptor units from ADC, the Alaskan Air Command, U. S. Air Forces Europe, and Pacific Air Forces.

Besides winning the coveted Hughes award, the 329th also was the recipient of the ADC "A" Award for outstanding operational performance during the last year.

The winning squadron is commanded by Lt. Col. Harry C. Hancock of Richmond, Va., and is part of the 28th Air Division's Los Angeles Air Defense Sector.

DiVincenzo Transfers To Rochester Post

L. A. DiVincenzo, former supervisor of accounting at GD/Electronics-San Diego, has been named manager of general accounting at Stromberg-Carlson, Rochester, N. Y.

In his new post, DiVincenzo will report to Hershall F. Johnson, controller, who also transferred recently from GD/Electronics-SD.

DiVincenzo is a native of Rochester and first joined the Stromberg-Carlson division there in 1951. He was supervisor of government accounting and later assigned to the controller's staff before transferring to the San Diego Stromberg-Carlson facility seven years ago.

DiVincenzo received his bachelor's degree from University of Rochester following his discharge from the Marine Corps after World War II.

General Dynamics NEWS

Published by General Dynamics Corporation, One Rockefeller Plaza, New York, N. Y. 10020; with editorial headquarters at 3302 Pacific Highway, San Diego, Calif. 92112, P.O. Box 1950, telephone 296-6611, ext. 1071. Logan Jenkins, editor-in-chief.

Astronautics Editorial Offices, Bldg. 8, GD/Astronautics, Mail Zone 130-01, P.O. Box 1128, San Diego, Calif. 92112. Telephone 277-8900, ext. 3322. Staff: Bryan Weickersheimmer, editor; Willard Harwood.

Convair Editorial Offices, Bldg. 32, Plant 1, GD/Convair, Mail Zone 1-320, P.O. Box 1950, San Diego, Calif. 92112. Telephone 296-6611, ext. 1071. Staff: Grayce Fath, Helen Pemberton.

GD/Electronics (San Diego) news contact: Helen Wood, 298-4641, ext. 1377, Plant 1, Bldg. 51.

Fort Worth Editorial Offices, between Cols. 71-C and 71-D, Assbly. Bldg., GD/Fort Worth, Mail Zone T-63, P.O. Box 748, Fort Worth, Texas 76101. Telephone PErshing 2-4811, ext. 2961. Staff: Dave Lewis, editor; Mary Beck.

Pomona Editorial Offices, Room 119, Bldg. 1, GD/Pomona, Mail Zone 3-13, P.O. Box 1011, Pomona, Calif. Telephone, NAtional 9-5111, ext. 6226-5279. Staff: Glenn Kehr, editor; Carol Colbert. Daingerfield news office, P.O. Box 947, Daingerfield, Texas. Telephone Lone Star, Texas, 2211, ext. 424.

* * *

Affiliated editions of General Dynamics NEWS are published in Rochester, N. Y., covering GD/Electronics and Stromberg-Carlson, editorial offices, 100 Carlson Road, HUbbard 2-2200, ext. 2555. Fred E. Voss, editor; and at Groton, Conn., covering GD/Electric Boat, editorial offices at Groton, HIlltop 5-4321, ext. 300 and 513, Joseph Tracey, editor.

Navy, Air Force Offices Moved

Navy and Air Force offices, formerly located in Bldg. 19, have been moved to buildings within GD/Convair, Plant 1, the middle of this month.

The Navy Bureau of Weapons Representative's office now is in the Room 39 area of Bldg. 1, formerly occupied by systems and procedures.

Air Force auditor's office is located in Bldg. 8, south end of the second floor.

Cdr. R. A. Evans, BUWEPSREP, and 24 persons assigned to functions under his administration are occupying the newly-refurbished Bldg. 1 area. Phone extensions for administration, contracts, engineering, industrial security remain the same.

Quality, under Fred Haverlandt, director, has been assigned a new phone number, ext. 1118. Phone number of the office's mail room and communications has been changed to ext. 1009.

Navy inspectors' office, under Ron East, associate supervisor-instructor, remains in the south end of Bldg. 33, Plant 1.

An outside entrance to the Navy office from Pacific Highway will be opened within the next week or so. Access will be just north of the patio and the Sassafras St. intersection.

Air Force resident auditor, J. W. Koljonen, and the eight persons reporting to him, chose to be relocated in Bldg. 8 for close proximity to Convair accounting, timekeeping, and payroll to facilitate flow of work.

All Air Force phone extensions remain the same.

Sea World Adopts Winter Schedule

Sea World, Mission Bay theater of the sea, is now operating on its winter schedule of five days a week.

It is closed on Mondays and Tuesdays through the fall and winter months. Open hours are from 10 a.m. until dusk Wednesdays through Sundays.

Reduced rate of $1.75 still is available to all Convair, GD/E, and S-C people through Dolphin Club memberships. Application cards may be picked up at Convair and GD/E employee services. Discount admission charge is 50 cents reduction in regular price of $2.25 and admits holders to all shows and exhibits, with the exception of hydrofoil boat rides. Price of boat rides is 50 cents for adults and 25 cents for children.

'Miss Torch' Balloting Gets Under Way Today

(Continued from Page 1)

out a fire, and let them do it themselves, if they wish.

Chief Dimmitt urges any department or person with questions to call the department, ext. 511, for information.

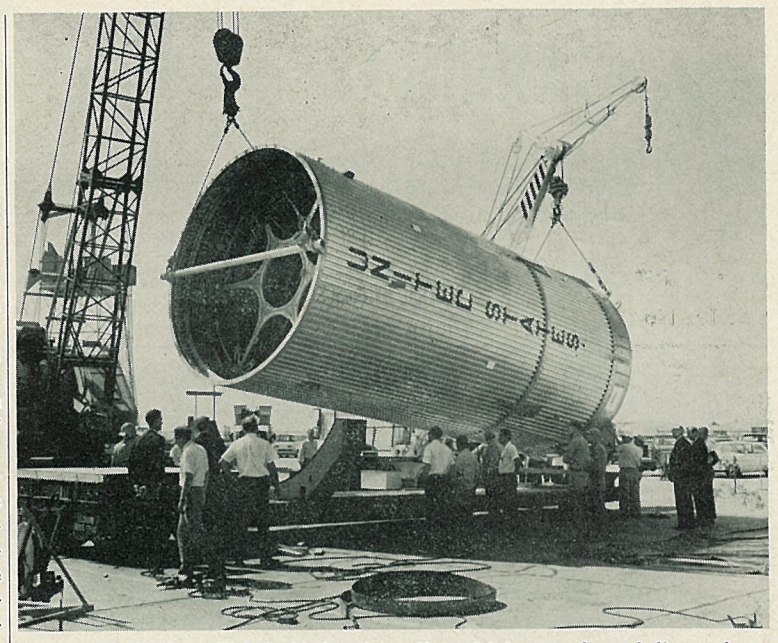
Stan Sharp, manager of industrial security, praised all Convair employees for their past contributions to fire prevention and their assistance to the Convair fire department. No fire loss was experienced at any Convair facility for the third straight year. Each employee, Sharp said, has played an important part in this achievement.

GD/E S-C WIVES TO MEET OCT. 8

GD/Electronics and S-C wives will hold their monthly luncheon Oct. 8 at Kona Kai on Shelter Island. Social hour is at noon with luncheon at 12:45 p.m. Reservations must be made by Monday, Oct. 5. Call either of the cohostesses, Mrs. H. J. Stuart, 488-0107, or Mrs. E. S. Winlund, 276-3300.

COMPENSATION MEET

M. C. Val Dez, who heads GD/Convair's safety activities, attended the annual meeting of the California Manufacturers Association's workman's compensation committee in Monterey, Calif., last week, Sept. 17-18.



MOVE-OUT — Third Little Joe II vehicle to be delivered to NASA (fifth vehicle built at GD/Convair) is loaded on truck flatbed for journey to White Sands Missile Range, N.M. It left Convair plant at daybreak Sept. 16 and arrived at White Sands two days later. This vehicle, first to be equipped with attitude control system, will be readied for launch later this year.

Convair's Oceanography Buoy, 'Bravo,' Braves Fla. Hurricane

(Continued from Page 1)

said Robert Devereux, Convair's oceanography project manager.

The buoy now is based at Miami ready to go into the Atlantic Ocean some time this week in time to stand in the path, hopefully, of more hurricanes to come. It will be anchored about 15 miles north of Miami in a slight change of location from original plans on recommendation of the U. S. Coast Guard. Mooring site is a little over a mile off Hollywood Beach, in 65 feet of water.

The buoy had been put in operational condition with instrumentation installed and checked out ready for its move to Miami just before Dora struck Jacksonville on Sept. 8.

When storm warnings were broadcast, the buoy was securely anchored on blocks in the Jacksonville Shipyards and the mobile ground station was driven across the St. John's River to the safety of higher ground. Convair's oceanography crew immediately set up communications with the buoy and maintained contact throughout the day and night.

Winds of 50 miles an hour and gusts up to 75 mph were recorded until the rotor of the buoy's anemometer was broken by flying debris, the only damage sustained. Low barometric pressure of 28.85 in. of mercury recorded on the microbarograph in the mobile station indicated that the center of the storm passed very near Jacksonville about 2:30 the morning of Sept. 9.

Ralph Kosic, Convair engineer who flew storm data back to San Diego for analysis, said that all instrumentation worked perfectly. The mobile ground station was able to come to the rescue of "civilization" during the hurricane when it was called into use to provide power for the motel's television sets and cigarette machine!

Another GD operation, Liquid Carbonic's facility about a quarter of a mile from the shipyards, played a role in recovery stages as it tried to meet the demand of thousands of Jacksonville residents who lined up for dry ice to keep food from spoiling.

Convair men sitting out the storm, besides Kosic, were Stan Uyeda, deputy project manager; Ken Jones, Warren Hoover, engineers; Jack Thayer, Dennis Hyland, Jack Heming, research and development technicians; Augie Bittner and Lee Bettis, instrumentation technicians.

All went on to Miami the weekend following the hurricane to meet Bravo at the end of its 300-mile journey down the Inland Waterway from Jacksonville. It took a tug two days and nights to push the 55,000-lb. buoy to Miami.

After the buoy is firmly moored off shore, only a two-man crew, one engineer and one technician, will remain with the ground station to gather test data and to observe the buoy. Each crew of two will be changed each month.

Plans are proceeding for construction of the second buoy for West Coast tests with a bidders' conference on fabrication of the hull held in San Diego last week. West Coast tests are scheduled to begin before the first of the year.

SAC Group Briefed On S-C Capabilities

A group from Strategic Air Command Headquarters, Offutt AFB, Omaha, Neb., were briefed on Stromberg-Carlson display capabilities during a one-day visit to the San Diego facility this month, Sept. 11.

S. M. Chesler, S-C requirements engineer, assisted by A. F. Casey, displays group engineer, explained S-C direct view displays during presentations and demonstrations of equipment.

Lt. Col. Chuck McKeag headed the SAC contingent. He was accompanied by L. L. Bennett, Majs. N. L. Gibson, M. P. Haines, J. P. Smith, Capts. R. W. Watson, B. C. Phythyon, J. E. Moore, L. L. Kunko, J. R. Reeder, P. R. Nuhn,

SAC VISITORS — S. M. Chesler of Stromberg-Carlson explains division's direct view display capabilities to Strategic Air Command group during recent visit to San Diego facility. Lt. Col. Chuck McKeag, seated third from right, headed SAC personnel.

Divisions 'Round the Turn' In 1964 Safety Contest

GD/Pomona continues to hold the lead in both major categories of the continuing General Dynamics safety contest among divisions, according to performance up to Aug. 1.

In the "best improvement" category, standings remained the same for "win, place and show" money, with Pomona, Canadair and General Atomic continuing in that order. However, Convair moved up to fourth place, ahead of Stromberg-Carlson and Material Service.

In the "best record" contest, year to date, Electronics-Rochester continued in second place but Stromberg-Carlson advanced to third, pushing Convair into fourth. For the "current month," with perfect records, Convair, Electronics-Rochester and Electronics-San Diego led the parade with Fort Worth in fourth.

Algie A. Hendrix, Corporate vice president-industrial relations, called attention to the fact that compared to the same period last year the Corporate-wide year to date injury frequency rate has improved 8 per cent and severity has declined 43 per cent.

Safety Standings

Division achieving best record:

Current month: (1) Convair, (2) Electronics-Rochester, (3) Electronics-San Diego. Year to date: (1) Pomona, (2) Electronics-Rochester, (3) Stromberg-Carlson. Division achieving best improvement:

(1) Pomona, (2) Canadair, (3) General Atomic.

ES/CIP Program Saves Million But Is Short of 1964 Target

General Dynamics divisions have saved over a million dollars through their Employee Suggestion/Cost Improvement Proposal programs the first half of the year.

However, the $1,153,000 already channeled into divisional coffers from installed suggestions is short of the half-way mark of the $3 million set as Corporate target for 1964.

GD/Convair led all divisions in total dollars saved. That division's $482,000 in ES/CIP savings is nearly 40 per cent of the total saved by all GD divisions in the first six months. GD/Fort Worth recently has installed two large suggestions that could put it in front by the end of the third quarter.

Fort Worth had the largest number of CIPs submitted; and GD/Pomona, the largest number of ESs.

Astronautics had the largest number of different employees submitting CIPs, while Convair had another first—largest number of different employees turning in ESs.

Electric Boat division had the highest average savings per cash award suggestion (ES), and Fort Worth had the highest average savings per CIP.

Pomona took the shortest time to process suggestions.

Both Astro and Fort Worth had exceeded their 1963 averages in number of suggestions submitted.

Another GD division joined the ES/CIP program with Liquid Carbonic initiating its own set-up in July. It now is processing first receipts and will be included in the next Corporate report.

'Pot-of-Gold' Program Seeks Best Use of Cash

(Continued from Page 1)

superior engineering competence, resourceful selling or good relationships with our customers and the public."

Division response to the program has been excellent, Pedersen reported during the committee's swing across the country.

"Many millions of dollars in liquid assets are required to operate a company as vast as General Dynamics," he explained. "However, we are certain that by careful managerial efficiency at all levels we can reduce the size of this cash sum and thus release assets for profitable use in expanding our enterprises or in debt retirement, thus contributing to the health of the Corporation."

Efforts at Cost Reduction Pay Off During First Half '64

(Continued from Page 1)

Division leaders in the various categories were:

Value control: Fort Worth division; Astronautics; Stromberg-Carlson.

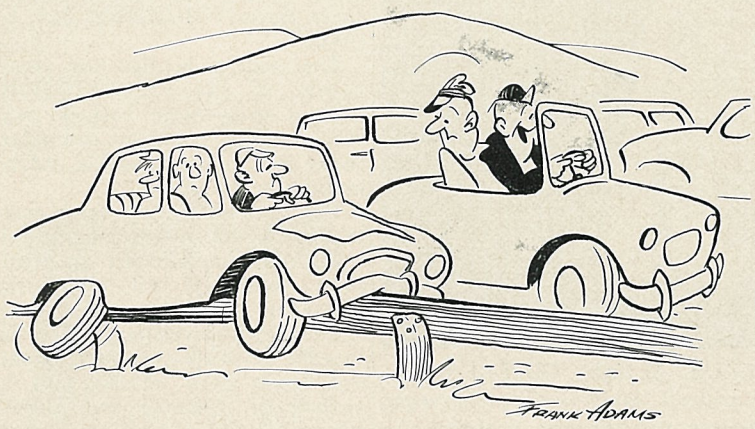
Procurement improvement: Astronautics; Canadair; Fort Worth.

ES/CIP: Convair; Astronautics; Electric Boat.

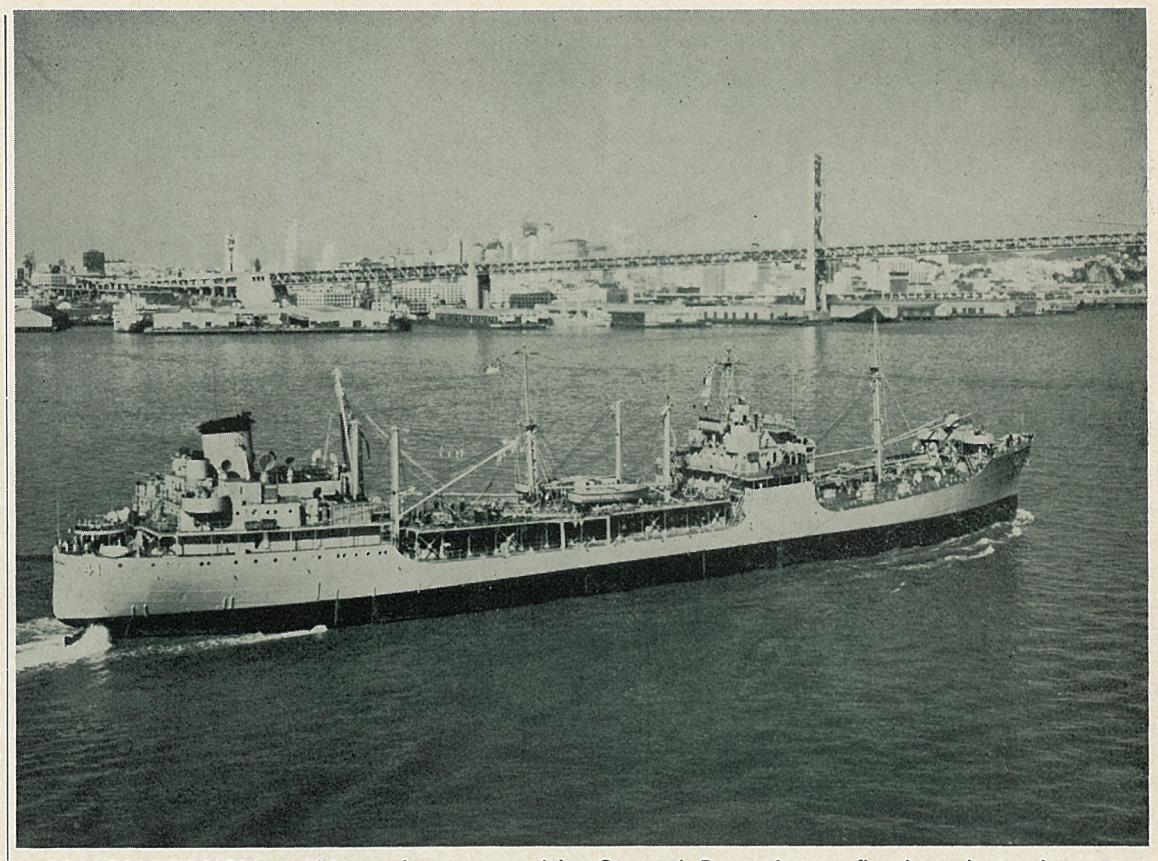
Resources economics: Astronautics; Electric Boat; Convair.

Management improvement: Astronautics; Electric Boat; Fort Worth.

Productivity improvement: Fort Worth; Stromberg-Carlson; Astronautics.



"Old Joe just won't be happy 'til he can ride a monorail to work."



FOR CONVERSION — Ships to be converted by General Dynamics to floating electronic centers for spacecraft tracking are of same type as USS Mattaponi (AO-41) pictured here.

Ship Building, Electronics Skills Put to Use in Winning Contract

Wide diversity of General Dynamics talents, skills, and capabilities was strongly evident two weeks ago when the Corporation won a $65 million contract to convert three World War II tanker ships, and equip them with extensive electronic tracking, command control, and communications systems for use in the Apollo program.

Directly involved are Dynamics' Electronics division in Rochester (the lead division), Electric Boat (which will convert the ships at its Quincy, Mass., yard), elements of the Electronics division located at San Diego, and Astronautics division. Available are the skills and talents of these divisions, as well as other GD facilities as might be needed.

Roger Lewis, General Dynamics president, commented:

"Few, if any, large systems contractors have the diversity and depth of technical and management competence in-house to do big and complicated jobs like this. By careful planning and coordinated effort we can bring these capabilities to bear on where it really counts—in winning new and important business in the present highly competitive environment."

First of the three tankers which will become floating electronics centers to track American astronauts on their first voyage to the moon will arrive at E-B's Quincy yard later this year. Named the Mission San Fernando, the vessel will be towed to Quincy from the National Defense Reserve Fleet at Ft. Eustis, Va. It will be followed by the Mission de Palo and the Mission San Juan from the reserve fleet at Beaumont, Texas.

The ships are 503 feet long, beam 68 feet, and displace 21,880 tons. After conversion they will be 595 feet long, with maximum beam of 75 feet and displace 22,-153 tons.

New mid-bodies, which will house extensive electronics and communications equipment, account for the increased size. The work is being done under contract to the Navy's Bureau of Ships.

Installation of extensive electronics and tracking gear, as well as checkout, will be done at Quincy under the supervision of the Electronics division as systems manager.

The contract is the first surface ship work awarded to General Dynamics. GD was low bidder in a competition involving 11 other firms.

Combining shipbuilding capability with long experience in communications and tracking, GD is peculiarly fitted for the task.

It was the Astronautics division that created the ultra-reliable Azusa tracking system versions which, since 1953, have tracked nearly every major missile or space vehicle launched over the Eastern Test Range (Cape Kennedy). By the time of Astronaut Gordon Cooper's Project Mercury flight in 1963 (Azusa's 500th tracking task) the system had compiled a reliability record of 99.2 per cent.

Astronautics has also designed and developed the GLOTRAC global tracking system for Air Force missile test center, Cape Kennedy—a system offering more precise tracking than Azusa, plus mobility as well.

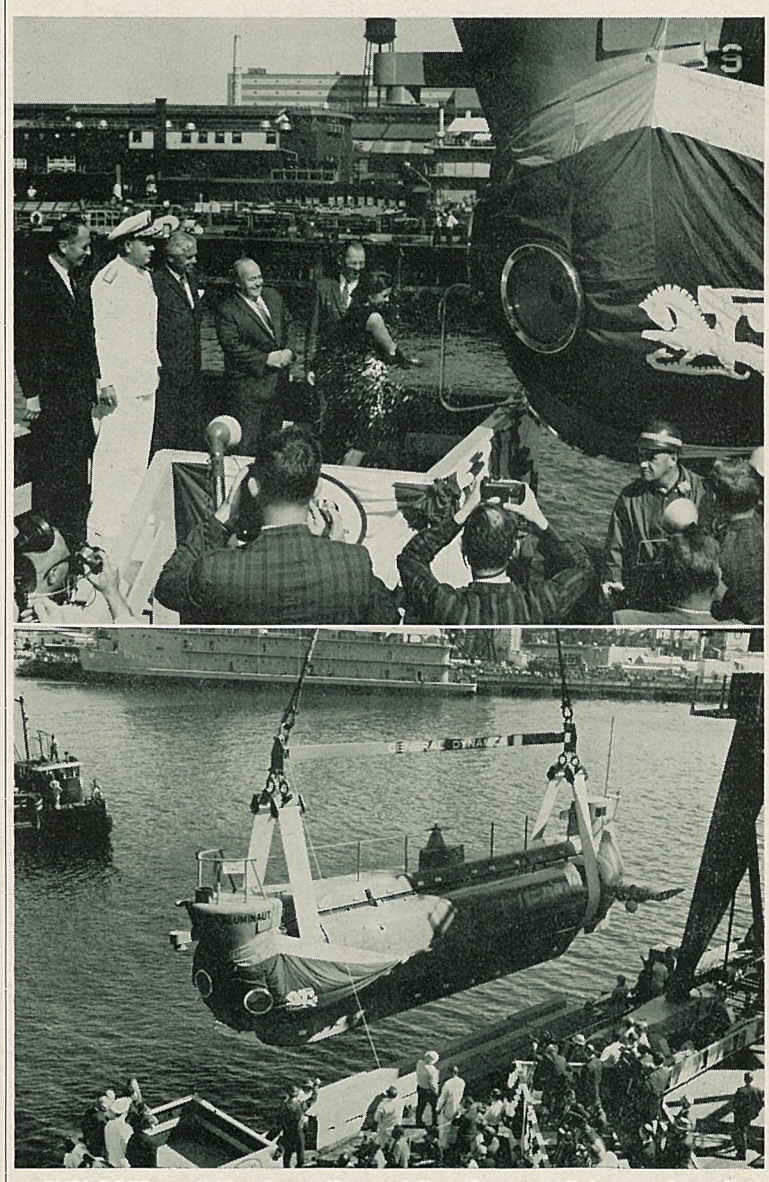
Development of both Azusa and GLOTRAC was directed by S. L. Ackerman, now vice president-operations at Electronics in Rochester.

C-141 Production Rate Increased

C-141 empennage production at GD/Convair stepped into higher gear last month with two of the large tail sections for the Air Force cargo jet transports delivered to Lockheed-Georgia, prime contractor.

The two-a-month delivery rate will continue through October and November and increase to three during December. Production will reach a peak of seven a month some time next year.

Convair is manufacturing 134 C-141 empennages under a subcontract from Lockheed.



EXPLORER — "Aluminaut," world's deepest-diving submarine, designed and built by Electric Boat division for Reynolds International, Inc., was launched at Groton, Conn., Sept. 2. It will operate at depths up to 15,000 feet and be used by Reynolds for research and commercial projects. In top photo, at christening, are, from left: Roger Lewis, General Dynamics president; Rear Adm. John Tyree Jr. deputy commander, Submarine Force, U.S. Atlantic Fleet; Navy Secretary Paul H. Nitze; J. Louis Reynolds, chairman of Reynolds International; J. William Jones Jr., E-B president; Miss Glenn Reynolds, sponsor.

People Mobility

Interdivisional Transfers

Following are recent personnel transfers among General Dynamics divisions. In parentheses are dates when individuals joined the company.

WILLIAM W. PIERCE (1950) from Astro to Fort Worth F-111 program; **M. DON WEISINGER** (1961) from Convair to research group engineer, Astro materials & processes; **CAL W. MORGAN** (1954) from Corporate Headquarters (Los Angeles field office) to Pomona advanced product planning.

Cal Morgan

ORVAL J. ANCEL (1956) from Astro to GD/Electronics-Rochester; **BOBBY G. LONGINO** (1951) from Astro to Fort Worth maintenance engineering; **WADE J. BAYLESS** (1956) from Astro to senior electronics engineer, Convair; **CHARLES DUNLAP** (1957) from Astro to quality control, GD/Electronics-Rochester; **ERNEST H. DeKALB** (1957) from Pomona to Fort Worth airframe design; **DONALD GLYNN** (1963) from Astro to GD/Electronics-Rochester.

JOHN R. MIKULSKY (1940) from Astro to Convair program analyst; **JOHN H. LINKHORST** (1958) from Astro to GD/Electronics-Rochester; **JOHN W. SNIDER** (1951) from Astro to Fort Worth support equipment design; **HOWARD D. MANEY** (1958) from Astro to GD/E-Rochester; **RICHARD J. EDWARDS** (1959) from Astro (Abilene) to Fort Worth maintenance engineering; **FREDERICK M. PANNEK** (1959) and **STANLEY M. RIFFE** (1961) from Astro to GD/Electronics-Rochester; **L. A. DiVINCENZO** (1951) from GD/Electronics-San Diego to manager of general accounting, Stromberg-Carlson, Rochester.

Lou DiVincenzo

KIMBLE M. WILLIAMS (1956) from Astro to Electric Boat as wage and salary administrator; **LANDON L. DAVIS** (1960) from Astro to program engineer at Electric Boat; **SAM O. PICKARD** (1963) from Astro to General Atomic; **NORMAN R. HARPER** (1961) from Astro to industrial relations, Electric Boat (Quincy).

Dynamics Joins Big French Firm To Form Electronics Company

General Dynamics Corporation and Compagnie générale de télégraphie Sans Fils (CSF) have announced formation of a jointly-owned French company. CSF is France's largest electronics manufacturer.

The new company, which will design and manufacture satellite tracking equipment, is to be known as Société d'Equipements Spatiaux et Astronautiques (SESTRO). Its headquarters will be located at Corbeville, near Paris.

SESTRO will combine the expanding activities of CSF's Space Division and the French concern's electronics experience with the technological capability in space systems of General Dynamics, which designed and built the Azusa missile tracking system and Glotrac tracking network used in United States missile and space programs.

The principal organizations in the growing European space market are the European Launcher Development Organization (ELDO) and the European Space Research Organization (ESRO). ELDO has seven member countries, including Australia, while ESRO has nine members.

The President Director general of SESTRO will be G. Muzard, head of CSF's New Weapons Sales Division. The Director general adjoint will be James F. Langston, former manager of field operations for the electronic programs group, GD/Astronautics.

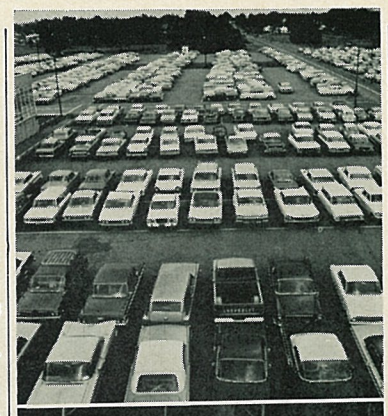
Dynamics to Sponsor Two Negro Students

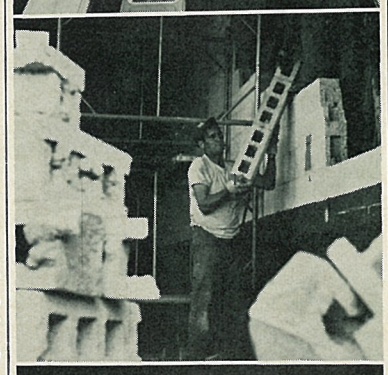
General Dynamics Corporation will sponsor college scholarships for two outstanding Negro students under the new National Achievement Scholarship Program, Algie A. Hendrix, Corporate vice president—industrial relations, announced.

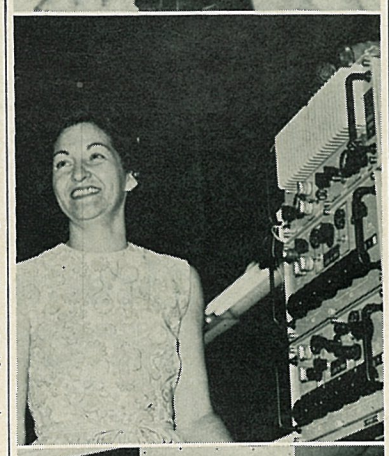
Preference will be given students who plan a career in a business field and who live in the vicinity of a General Dynamics operation.

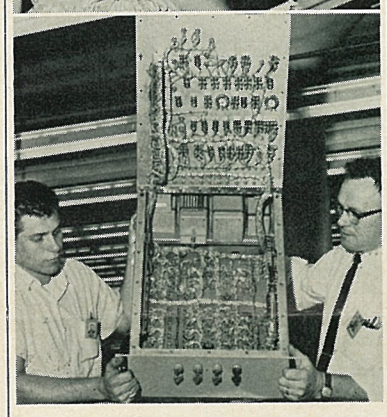
Achievement scholarships range from $250 to $1,500 a year. Winners will be determined in the same manner as National Merit Scholarship winners.

Candidates should consult their individual high school counselors for full details.









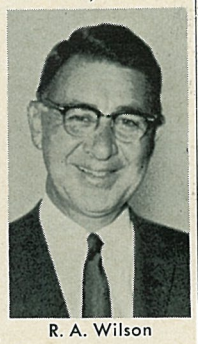
BUSY, BUSY — GD/Electronics at Rochester is moving at faster and faster pace, with employment moving up. Photos, from top down: parking lots were expanded 30 per cent recently; walls are being eliminated to create more space; Mary Mangone, group leader in WRC-1 system production; switching panel for AGERD 6805, attitude and rate test station.

Doyle On Staff Of Value Course

C. W. Doyle Jr., GD/Fort Worth division cost reduction and value control administrator, will appear on the staff of the sixth annual Value Engineering and Analysis course offered by Industrial Education Institute this week in New York City.

GD/E Business Backlog Reaches Record High

Both employment and business backlog for General Dynamics/Electronics at Rochester are at all-time highs and prospects are for the trend to continue, Richard A. Wilson, division president, reported this week.



R. A. Wilson

Employment, which stood at 3,500 in June (**GD/NEWS**, June 17, 1964) now is 4,150 and selective hiring is continuing. From Jan. 1 through July, GD/E hired 1,321 non-exempt employees (including hourly) and 261 exempt. There is a current backlog of 250 departmental requests for employees.

(Typical of demand for qualified individuals at Rochester was the recent loan of more than 60 manufacturing employees from Electric Boat, Fort Worth and Astronautics divisions to help GD/E over a critical schedule.)

GD/E sales backlog at this point is 25 per cent greater than anticipated at the start of the year. This does not include the recently awarded contract for Apollo instrumentation ships. (See story on page 3.)

Electronics' spectacular growth in the last year or two was traced by Wilson to several key factors, including:

More efficient operations and improved competitive position;

Continually expanding technical development programs in various product lines;

Fruition of basic studies leading to development of a great deal of specialized know-how.

As an example, Wilson cited the division's current position as a large supplier of single sideband radio equipment. (Single sideband is an advanced circuitry technique that greatly increases the number of frequencies available for transmission.)

The business grew directly from a company-funded program to develop a receiver in the HF band and led ultimately to the SC-900 Series and a decision to tool for production to establish an inventory of completed units. This helped materially to win awards from the Air Force for installations at Atlas, Titan and Minuteman sites.

Coincidentally, Electronics shared with the U. S. Navy a development program for AN/WRC-1 single sideband equipment and development contracts were received later from the Army for AN/GRC-106 and from the Air Force for AN/GRA-42 and 43. Large production contracts for both the AN/WRC-1 and AN/GRC-106 have contributed substantially to the division's sales volume and will continue to contribute in the next few years.

Also contributing a great deal to the division's growth has been the expanding F-111 AGE program (Aerospace Ground Equipment), awarded as a result of previously well-established capability in the field. About 1,400, a high percentage of them engineering and technical personnel, are now engaged in this work.

Wilson called attention to growth of other product lines as well, and cited as typical the award of a $1,100,000 contract for the AN/TLQ countermeasures set; $800,000 for a missile range instrumentation control system (RICS); $500,000 for machine language typewriters; and over $1,100,000 for telemetry and tracking receivers.

Study contracts also have been received in such areas as vocoders, speech compression, crypto facilities, value engineering, thin films, micro-TACAN, hydroacoustics, ferroacoustics storage, laser modulation, etc., all of which extend division technical knowledge and point the way for valuable new products.

Meanwhile, space has become a factor at the division's 800,000 sq. ft. plant at 1400 North Goodman street.

To make room for expanding operations, substantial interior changes are being made in the plant. Wide corridors, useful to the previous occupant before the buildings were purchased by General Dynamics in 1956, are giving way to more conventional aisles and the space is being put to use. Partitions have been moved or eliminated, for the same purpose. Parking lots have been expanded 30 per cent.

The general atmosphere at Electronics-Rochester is one of a busy "going concern." In a statement to employees last month Wilson said:

"We find ourselves in the best position we have ever been in... But we must not be complacent ...No customer gives us any business. We have to earn it either with a better product or a lower price—or some of both."

Computer Displays Gain in Versatility With New Matrix

A new component has been developed to expand the versatility of computer displays produced by General Dynamics' Stromberg-Carlson division.

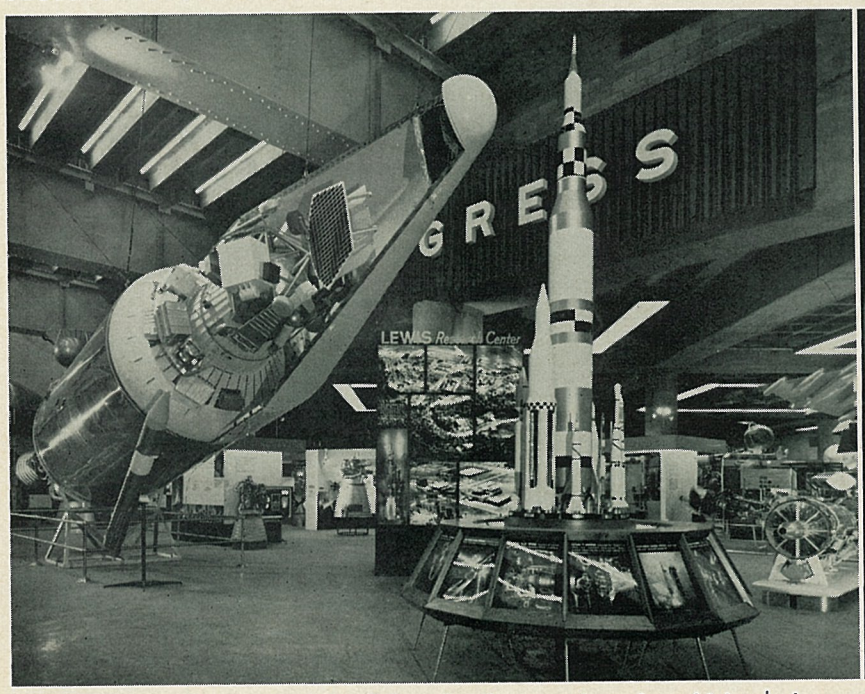
The component, a matrix containing 96 different characters and symbols instead of the usual 64 available in the CHARACTRON® Shaped Beam Tube, is being incorporated into new computer display systems produced by Stromberg-Carlson at its San Diego facility.

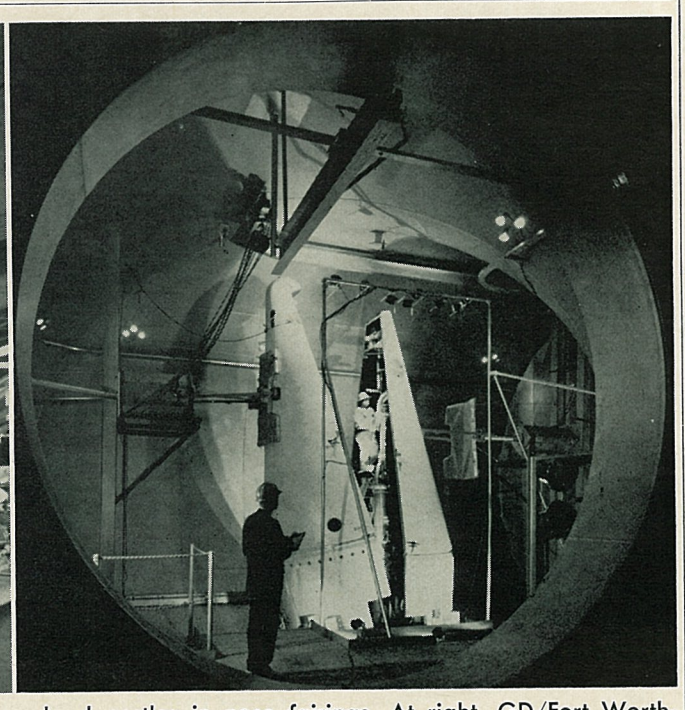
Initially, the matrices will be used with 7-in. CHARACTRON tubes which Stromberg-Carlson is manufacturing for the National Aeronautics and Space Administration's Mission Control Center at Houston, Texas. Stromberg-Carlson is supplying computer display equipment under a contract from Philco Corp. which is responsible for development and equipment of the center where data will be acquired and processed during Gemini and Apollo space shots. (**GD/NEWS**, Jan. 2, 1964.)

The matrix is the key component of the CHARACTRON tube, a proprietary cathode ray tube used to translate computer codes into understandable information on its face.

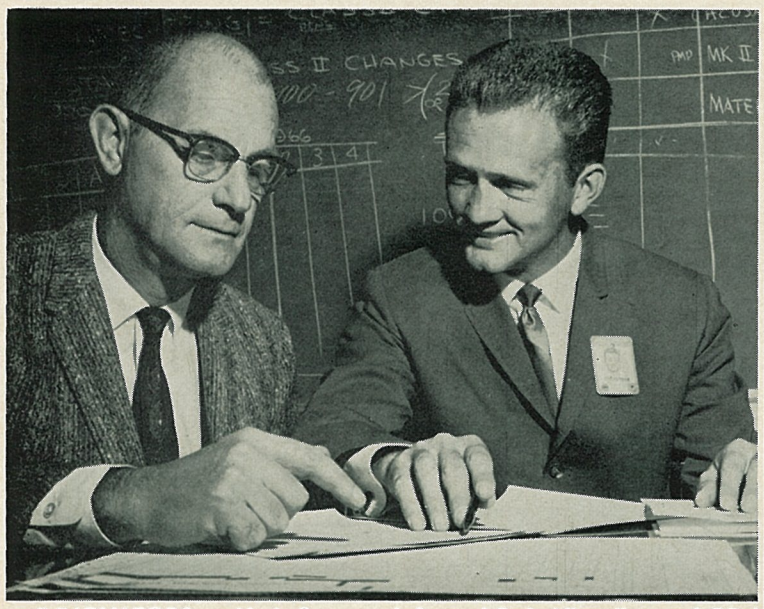
The standard matrix array contains 64 characters, arranged eight rows horizontally by eight rows vertically. All alphabetic characters are upper case.

The newly-developed matrix is capable of presenting both upper and lower case letters, plus a variety of symbols and Greek letters. The tube also has a spot writing capability, producing an .008-in. spot at four microamps.





SPECTACULAR — At left is full-scale Centaur launch vehicle exhibit, heart of NASA's Lewis Research Center representation in "Parade of Progress," recognizing opening of Cleveland, O. convention center. Display included Astronautics-built Centaur tank which NASA used with cutaway section and "packages" to show how payload nestles in nose fairings. At right, GD/Fort Worth-built nose fairing, which will protect lunar-landing Surveyor spacecraft, launched by Atlas-Centaur combination, is shown undergoing testing in environmental Space Power Chamber at Lewis Research Center.



INNOVATORS — H. J. Sumner, left, and R. L. Vincellette of GD/Astronautics review single form, Operational Planning and Production Order, which, with Planning Control Sheet, constitute total documents required in new "one-write" planning system they developed.

Planning Paperwork Reduced By Astro's 'One-Write' System

A new "one-write" shop planning system which provides the timeliness of manual methods with the efficiency and thoroughness of computerized techniques was installed recently at GD/Astronautics division.

Developed in tool planning and design (Dept. 420), the system reduces paperwork in several departments and provides faster release of new and revised planning documents, while retaining the multitude of advantages inherent in GD/Astro's computerized planning system **(GD/NEWS, Jan. 9, 1963).**

Submitted as a Value Improvement Project, the system won credit for $506,000 in hard savings for the operations department, under the division's value control program.

Previously, when planning was completed a Planning Control Sheet (PCS) was prepared and the information entered the computerized planning system.

Then, one to three days elapsed while shop paper was generated and distributed to production areas. Still more time was required—up to an additional three days—if a planning error was detected by the computer.

On GD/Astro's high priority program, this time lag presented a serious problem. It seemed impossible to release planning through the computer and still permit the shop to meet its rigid schedules.

This was the challenge recognized by General Supervisor H. J. Sumner, who asked H. L. Prettyman and R. L. Vincellette of Dept. 420 to investigate.

The "one-write" technique is the outgrowth of their efforts.

The system is precisely what its name implies. Planners write only once—on a new, three-part, snap-out form which includes an off-set printing master.

A single writing, using the "one-write" form (called an Operational Planning and Production Order) produces a keypunch copy with computer information, a file copy, and the master for reproducing shop paper.

Once initial planning has been approved by quality assurance and time study, production departments can begin work at once, while the keypunch copy of the form activates the computerized planning system at the same time.

A major advantage of the "one-write" method is that in the event of supplemental planning or changes, planners simply issue a second form which automatically up-dates the permanent paper.

The new method eliminates nearly 90 per cent of the planning paper required in the earlier "dual write" systems. It facilitates quick release of new and revised planning documents to the shop, and replaces all previous planning forms except the PCS with a single form.

Use of the technique is expected to improve schedule capabilities for planning release, reduce previous confusion among planners and shop personnel alike as to "which planning form to use for what task," and ease the planning workload by automatic up-dating.

FAREWELL — Joe Anchner, left, and Art Kumm, Grumman engineers, get Texas-style send-off from GD/FW's B. J. Moore, Dept. 71 general foreman.

No Foolin'

TEXAS-SIZE EARS CONVINCE SKEPTICS

Two New Yorkers headed home recently, convinced that all Texas tales aren't necessarily "tall" ones.

Joe Anchner and Art Kumm, Grumman engineers who recently completed an F-111 assignment at GD/Fort Worth, were at first admittedly skeptical of Lone Star braggadocio.

They especially doubted the complaint of Hollis Ford, Dept. 22, that jackrabbits — Texas size, of course — were eating watermelons on his farm.

But when the Grumman engineers got ready to return home, Ford had a surprise for them: a pair of genuine seven-inch jackrabbit ears, tanned and ready to mount.

"I killed one of the culprits—a 15 pounder—and saved the ears for the Grumman boys," Ford said.

Anchner and Kumm helped design a completely common hydraulic system (to both Air Force and Navy F-111s) for the tail section.

"They did a marvelous job, and it was a real pleasure working with them," said B. J. Moore, Dept. 71 general foreman.

"The Peace Corps is just supposed to work with people, Crumley."

Rotating Model of F-111 Scheduled For Prominent Spot at World Fair

World's Fair visitors will soon be viewing a one-quarter scale model of the F-111.

The big model made its debt at the recent Air Force Association conclave in Washington, D. C. From there, it was to be placed in an Air Force exhibit at the Fair.

A virtual replica of the Air Force F-111, the model will rotate constantly atop a pedestal, while the wing completes a "sweeping" operation every two minutes.

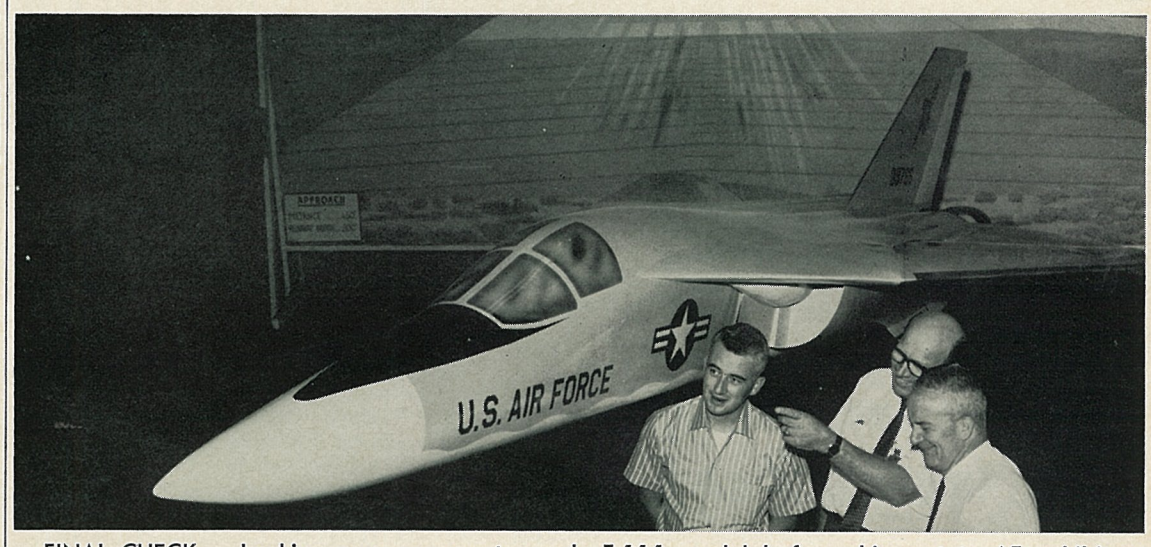
Small motors in the pedestal and fuselage furnish power for the operation.

Built of fiber glass and wood, the model's hollow fuselage is supported by wooden bulkheads.

FW Dept. 85, (mockup), completed the task in about six weeks, in time for the model to appear at the AFA convention.

W. A. Shahan is Dept. 85 supervisor, while Claude Houp Jr. is general foreman.

Monitoring shipment of the model to the convention, and later the Fair, was A/1C Michael O'Neill, Air Force Orientation Group, Wright-Patterson AFB, Ohio.



FINAL CHECK — Looking over one-quarter scale F-111 model before shipment to AF exhibit at World's Fair are, from left: A/1C Michael O'Neill, AF Orientation Group, Wright-Patterson AFB; W. A. Shahan, GD/Fort Worth Dept. 85-0 supervisor; and Claude Houp Jr., Dept. 85-0 general foreman.

GD/FW Research Facility Will Test Heat's Effect on Apollo Spacecraft

Effect of re-entry heat on the Apollo spacecraft will be simulated soon in GD/Fort Worth's "improved" Hyperthermal Research Facility.

During a two-week period, about 96 models will be subjected to temperatures of up to 8,000 degrees Fahrenheit.

"Runs of up to two minutes in duration will be made in this test," said Gene Hull, project aerodynamics engineer, "and in the future, runs will last as long as 20 minutes."

The models, resembling an over-sized bullet, will be made of ablative materials, similar to the outer "skin" of the Apollo space ship. This material will peel away upon re-entry.

"We will measure the mass loss of the materials due to ablation and check temperatures at the base of the model, which will simulate the actual surface of the space craft," Hull said.

HRF is used to simulate the extreme speeds of space flight, plus the terrific heat generated by re-entry.

It works like this. A heat-producing plasma generator is the nerve-center of the facility. Bottled nitrogen is pumped into the generator and heated instantly as it passes through a high-intensity electric arc. Nearly two million watts of electric power can be supplied to the arc. The apparatus is cooled by water.

A secondary gas, oxygen, is injected into the stream to form simulated air, which then rushes into the test chamber through a nozzle at speeds as high as 7,000 miles an hour.

Speed of the air stream is determined by a family of "supersonic nozzles." Two nozzles have been built for the Apollo experiments.

Improvements in HRF which permit faster runs are an air-conditioned control room and more sophisticated mechanical and electrical circuitry.

"Where we could run only about four data points a day previously," Hull said, "we can now run as many as 20."

The Apollo experimentation is but one of a series of new "space-age" tests slated for HRF.

"We plan to make studies of the effect of high speeds—up to Mach 10—on space-craft inlets," Hull said.

GETTING READY — Apollo model is readied for run in GD/Fort Worth's Hyperthermal Research Facility by Gene Hull, project aerodynamics engineer.

Mother's Feat of 100 Years Ago Repeated by McMahon of GD/FW

Take it from J. F. McMahon, GD/Fort Worth Dept. 15-2, kissing the Blarney Stone doesn't give one a "gift of gab" at all.

In fact, it leaves you quite breathless!

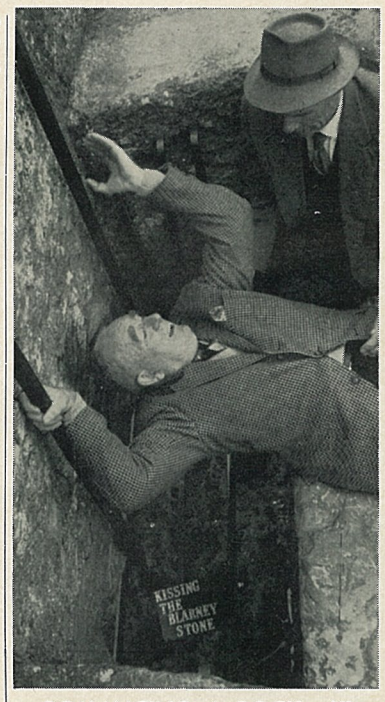
The famous stone is imbedded some 200-feet high in the outer wall of ancient Blarney Castle in Cook, Ireland.

"To kiss the stone," McMahon said, "you must extend the top part of your body over this opening, then drop your head down a couple of feet, then twist your neck back all the way."

All this after climbing 200 feet of circular stairways to reach the rock in the first place.

In short, it's sort of a "back-breaking" experience. And this is why, he reckons, relatively few tourists — or natives, for that matter—have actually kissed the rock.

But McMahon, you might say, had motivation: his mother had bussed the fabled stone over 100 years ago. "After all," he said, "if your mother did it . . ."



ROMANCING A ROCK—Kissing Blarney Stone is real athletic feat, J. F. McMahon, GD/Fort Worth Dept. 15-2, discovered on recent trip to Ireland.

Kissing the Blarney Stone was the highlight of McMahon's return to Ireland after a 50-year absence.

He was born in the village of Kilkenny, where he spent the first 11 years of his life. Despite industrialization, he said, many things remain much as they were nearly a half century ago.

McMahon and his wife recalled many other interesting experiences during a 21-day tour of the Emerald Isle, England, France, Switzerland, and Italy.

He met Pope Paul VI at the Castle Gondolfa outside of Rome. And he just missed a visit with the president of Ireland, whom he had met 32 years ago in Ohio.

ART AND ARTIST — GD/Astro's Thomas Potts exhibits watercolor works which are earning him increased prominence in art world. Many pictures shown were developed from sketches made during vacation to Westport, Conn., where he held one-man show.

Water Colors

GD/Astro Buyer, Rising Artist, Holds One-Man Show in East

Thomas S. Potts is a buyer (Dept. 813) for GD/Astronautics. He is also an artist of rising prominence, who found special encouragement in an almost "triumphal" return visit to his boyhood home.

Last month, Potts and his wife, Ruth (for many years secretary to R. H. Biron, former General Dynamics vice president, now vice chancellor of University of California at San Diego) journeyed to Norwalk and Westport, Conn., taking with them 54 of the artist's recent watercolors.

There, in the East Coast cultural and artistic center, Potts held a one-man showing of his work.

Tom Potts graduated from Norwalk, Conn., high school in 1938, studied painting with the late Arthur Elder of Westport, and then went west to school and stayed to "seek his fortune." This year's vacation was his first return visit in 17 years, 13 of them with General Dynamics.

But in the interim, painting for Potts has become an engrossing hobby. He continued study with California artists, exhibited widely throughout the Southwest, and began to garner his share of prizes and blue ribbons. His work was included in the 1964 Southern California Exposition show, "Santa Barbara to the Border," judged by Vincent Price, Irene Periera and Vance Kirkland.

Potts' Connecticut show attracted a discriminating audience, including, besides local residents, Frederic Whitaker, internationally famous watercolorist and contributing editor to American Artist magazine.

Visitors included General Dynamics friends, James L. Budros, Corporate director of compensation and personnel development, and Robert A. Bussey, Corporate insurance manager.

When the show was over, Potts had sold more than 60 per cent of the works he displayed—mostly landscapes of California, Arizona and Mexico. ("I think perhaps they wanted a change from red barns and lobster pots," he joked.)

Back in San Diego, Potts now spends much of his leisure time developing paintings from sketches made during his trip east.

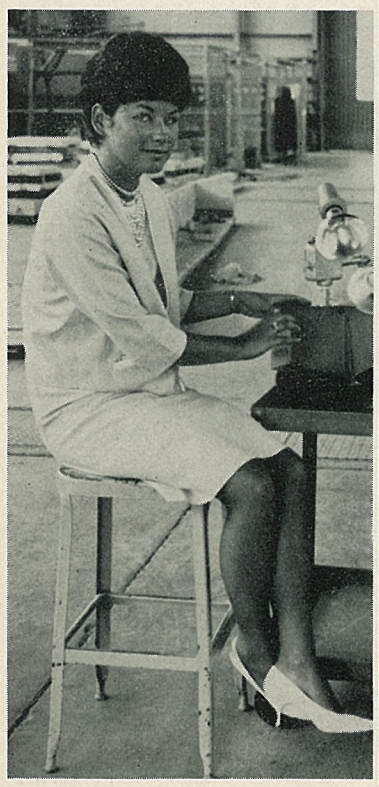
Local art fanciers may currently see his watercolors displayed in Balboa Park's Spanish Village. There, Sept. 27, he will demonstrate painting in Studio 25 on behalf of San Diego Watercolor Society, for which he serves as a board member.

Convair Daughter Joins Range Group

A 19-yr.-old Convair daughter unexpectedly joined the Convair family at White Sands Missile Range, N. M., for her first job this summer when her name was drawn through a local secretarial service.

Gail Peterman, daughter of Frank Peterman, long-time Convair employee now Dept. 311 lead inspector at White Sands, got her first taste of work with the company when she was sent in response to a request for a vacation fill-in.

For a couple of weeks recently she assisted Flo Lawhead in the office of J. S. Boaz, site administrator, while Joanne Larkin was on vacation.



JOINS FAMILY — Gail Peterman, Convair daughter, at work on job with Convair group at White Sands.

DUCKS UNLIMITED INVITATIONS SET

General Dynamics nimrods who enjoy duck hunting have been invited to the 21st annual Ducks Unlimited dinner slated for Oct. 1 at El Cortez Hotel (International Room).

Payne Johnson (Stromberg-Carlson-SD) is chairman. Astro's George Cowan is a committeeman. They may be reached at exts. 1377 and 3818, respectively, for tickets. Astro employee services, Bldg. 8, also has tickets available.

Tickets are $15 each and cover a social hour, roast squab dinner. premiere showing of the latest Ducks Unlimited waterfowl movie, and an opportunity to win many prizes.

Special attraction will be Edgar Bergen, Charlie McCarthy and Mortimer Snerd.

Proceeds from this annual affair are used to help restore waterfowl breeding grounds in Canada.

New Tote Boxes Aid Handling

Initial shipments of the latest type modular tote boxes have been placed in service at GD/Astronautics in still another improved material handling effort.

They will comprise an engineered system of containers, accessories and inserts for toting and storing everything from transistors to terminal boards, small pieces to complete assemblies. They will handle greasy or wet components to super-clean items, either extremely cold or hot.

Boxes are now available in seven sizes. They range from 11 to 22½ inches long, 8¼ to 17½ inches wide and 3½ to 8 inches deep.

Made of high density linear polyethylene, each box is complete with a snap-on clear plastic top, plus either a snap-on or fixed label area. Plastic dividers may be used to make each container a multiple carrier. Foam may be added as protection for shock or vibration-prone components. Each is designed to facilitate stacking and nesting, minimizing space requirements in storage areas.

Receiving inspection received the initial allotment of tote boxes. There, incoming parts and components are transferred into appropriate boxes prior to routing through the environmental test laboratory and ultimately to stores areas. Once emptied, boxes are returned to receiving inspection for recycling.

As additional tote boxes are received, they will be dispatched to electronic manufacturing and regular production and storage areas throughout the division.

Coordinating this added material handling improvement for Astro has been the task of the material handling and packaging engineering department under C. C. Harper Jr.

Astro Tennis Team Wins Net Tourney

Scoring 45 out of a possible 50 points, an Astro tennis team recently swept to first in an industrial net tournament held over a five-week period.

Astro fielded two teams in the event which also attracted teams from Cubic, Electro Instruments and Navy Electronics Laboratory. Each team played two doubles and two singles matches per week, scoring points for each win.

Astro's winning doubles players were Bill Curtiss, Ron Geist, Morry Higgins and Larry Hobson. Larry Chambers and Terry Chatwin handled singles competition. Team alternates were Bob Bochman, John Cannau, Cecil Norwood and E. W. Rothe.

Efforts are being made to expand this league for future tournaments. Individuals interested may contact Astro's Ray Hardy, ext. 2549, or Darrell Lachel, league commissioner, at 277-6780, ext. 389.

Blendells to Appear At Teen Club Dance

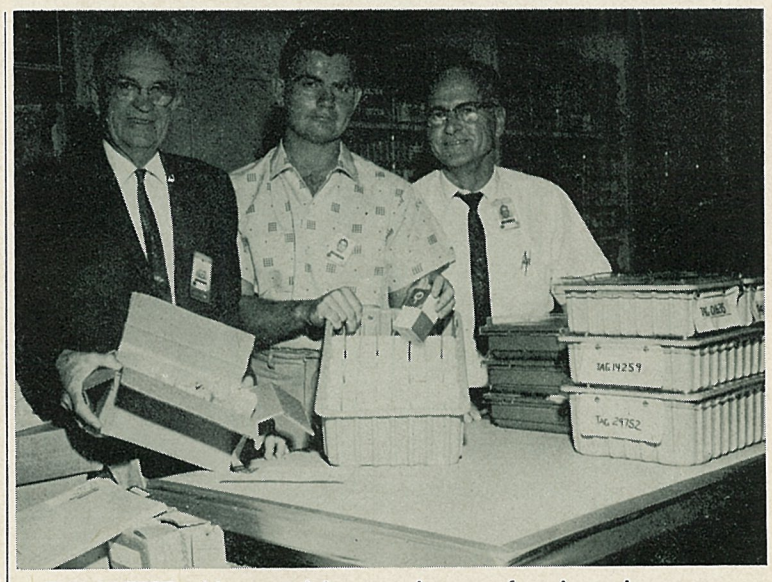
"The Blendells," popular recording group, will be featured at ARA Teen Club's Oct. 3 dance, 7:30 to 11:30 p.m., in ARA Clubhouse.

Members with dates may invite another couple to accompany them, while members arriving "stag" may bring one guest. Admission will be 50 cents for members, 75 cents for guests.

Commissioner John Hess said good school clothing will be appropriate.

Hess also issued a reminder to parents that more adult chaperones are need for club events, and invited those who wish to help to contact him at 469-6498, evenings.

GD/Astro employees may pick up club applications for their teen-agers at employee services outlets. The club has scheduled top teen attractions for up-coming dances, including "The Surfaris" for its Oct. 17 event.



THE LATEST—New modular tote boxes of various sizes are now in use at GD/Astro to protect and improve parts handling. First to receive boxes was receiving inspection where, from left, Lee Sattro, supervisor, Bruce Fayette, electronic inspector, and Jim Beck, material handling and packaging engineer, place incoming parts in boxes.

Junior Rifleers Are Victorious In Both Team, Individual Events

Astro Junior Rifleers out-shot three other club entries in both team and individual competition at the Area Invitational Tournament hosted by Valley Gun Club juniors at El Cajon Aug. 29.

Jr. Rifleers' Gold Squad, made up of GD sons from Astro and Convair, totaled 1,830 points to runner-up Poway's 1,799. Valley Gun Club was third and Pacific Beach, fourth.

Astro's five-man team was not only high in team scoring but had high overall individual scores in first three places. Dick Ellis finished with 383 out of a possible 400 points. He shot a perfect 200 in prone position; dropped one point in sitting position to score 99; and scored 84 out of 100 in standing event. Second-place Gold Squad member, and second placer in the tourney, was John Tramposh, 368. Robert Eaton was third with 364. Dominic Cognato shot a 359 and Bill Crosthwaite, 356.

Ivus Ellis, assistant coach, was squad coach for the tourney in the absence of Dave Farrelly, coach.

The squad is now priming its guns for the Southern California Junior Invitational meet at El Monte this Saturday, Sept. 26. Rifleers will enter six in individual shooting and three two-man teams in squad competition.

Bob McGregor of Convair Dept. 6 is Astro Junior Rifleers club leader and Martin Miller of Convair still photo lab is chief instructor.

Memory Training Course Offered

General Dynamics employees throughout the San Diego area are eligible to take part in a special memory training course opening for a 10-week period Oct. 5.

Sessions will be held each Monday from 7 to 10 p.m. in the lounge, House of Hospitality, Balboa Park.

Don Robinson, local memory expert, will instruct. Cost is $25 per person for the entire program, payable at the initial session. Robinson may be reached at 281-3344 for information.

The course is under the sponsorship of the San Diego Industrial Recreation Council.

Astro Players Win In Bridge Tourney

Members of ARA Bridge Club took active roles both as planners and players during the recent San Diego Sectional Bridge Tourney at Stardust Hotel.

G. N. Hampton, Dept. 170, was instrumental in planning and coordination of the annual event, which attracted many of the country's top bridge fans.

Singular success in the contest came to GD/Astro's Marvin L. French, Dept. 376, who won both the men's pairs and open pairs competition.

Other ARA contestants receiving awards in one or more events were: Gene Alford, Elma Buchanan, John and Stella Christy, Ralph and Isabel Emerson, Billie Evans, Mrs. French, Hampton, Mrs. Jim Hanratty, H. H. Johnson, J. F. Jaminett, Paul and Kathy Lewis, Ceil McCullough, Tony and Jo Miller, Mitzi Rustad. Al Silverman, Ann Stephens and Craig Stump.

Divers Will Compete At Cardiff Oct. 11

Astro Divers will gather at Cardiff-by-the-Sea at 9 a.m. Oct. 11 for their regular monthly lobster and fish competition.

September honors in the spearfishing class went to Bob Nichols with Charles Davis and John Phair close behind. Jorge Zorrilla copped abalone fishing laurels followed by Nichols and Phair.

Rod Johnson continues to hold the annual spearfishing lead in the form of a 62-lb. white sea bass he landed without breakaway gear.

Space Facility Visit Open to GD Families

A "Goldstone Safari" sponsored by several professional groups still has openings for interested General Dynamics personnel.

It will be held Oct. 3, departing San Diego around 7 a.m.; returning around 8 p.m. Objective will be a visit to the Goldstone station of the Deep Space Instrumentation Facility (south of Bishop). Air conditioned buses will be used, with the cost per person either $4 or $6, dependent upon group membership. Families are invited.

GD/Astro's M. M. Chazotte, ext. 1687, instituted the trip and will supply information. Assisting him are Astro's Eric Herz and F. M. Millican.

Weight Engineers To Meet Tomorrow

San Diego Chapter members, Society of Aeronautical Weight Engineers, will gather at Romaines Mexicano at 7 p.m. tomorrow (Sept. 24) for a dinner-business meeting.

A. C. Marshall, vice president-engineering of HEXCEL Products, will discuss "From Egg Crate to Missile."

SALVAGE YARD HOURS SET

Convair's salvage yard will be open this Saturday (Sept. 26) for employee sales and again on Oct. 10. Astro has scheduled three open sales days during the month of October. The Kearny Mesa salvage yard will be open to GD people the mornings of Oct. 3, 17, 31.

When telephoning, never mind the weather. Get to the point. Telephone time costs money.

Sports & Recreation

Pre-War Personnel Battling GD/E Ops in Slow Pitch Play-off

Pre-War Personnel swept second half of CRA's "slow pitch" softball tourney but lost their chance to snap the overall league championship without an argument when they dropped the play-off for first-half title to GD/E Operations, 6-3.

The two teams tied for first-half top spot with 5 won, 1 lost.

Now, Pre-War boys and GD/E Ops are in the midst of a best two-of-three play-off series to see which can grab the league title. First game was set for last Thursday (Sept. 17); second will be tomorrow night (Sept. 24); and final tilt, if necessary, will be Oct. 1. All are at 8:15 p.m. on Colina del Sol field, 54th St. between El Cajon Blvd. and University.

In the Sept. 10 play-off struggle GD/E Operations dumped Pre-War Personnel in the fifth inning with a flurry of strong hitting climaxed by Mike Peterson's home run. GD/E Ops scored two runs in the first and hit the jackpot in the fifth with four more.

Pre-War's Ray Lucero hit a homer for that team's first score in the second.

Bob Baker, pitching for GD/E Ops, allowed only four Pre-War hits. Gil Crosthwaite was on the mound for Pre-War gang.

Pre-War Personnel dropped its only loss of the second round to GD/E Material, 3-1, in last game of the season Sept. 3. GD/E Operations lost to Convair Material, 6-2, in another upset. Fire Dept. won its only game of the second round from Beasts, 12-5.

SECOND-HALF STANDINGS

	Won	Lost
Pre-War Personnel	5	1
GD/E Operations	4	2
GD/E Material	4	2
Hi-Lows	3	3
Convair Material	2	4
Beasts	2	4
Fire Dept.	1	5

Tourney Field Limited to 80

Convair linksmen may start signing today (Sept. 23) for the annual CRA Plant Golf Championship tourney to be played three Saturdays, Oct. 3-24-31, at Bonita Valley Country Club.

Commissioner Ken Wulfemeyer urges early entries as the tourney will be limited to 80 golfers. The first eligible 80 to sign before next Monday (Sept. 28) will get starting times. Entries may phone ext. 1705, Plant 1, now.

Players must turn in current established handicaps and must have taken part in at least three CRA tournaments since the first of the year.

Entry fee is $5 and must be paid to Wulfemeyer at time of sign-up.

This fee includes greens fees for the first match which will be forfeited if the player does not take part in the opening round. Entrants will pay their own fees for subsequent rounds.

The tournament will be organized for match play by handicap flights.

Al Reiter of Dept. 115 won the 1963 tourney with a net score of 75.

Road Runners Hold Weekend Reunion

About 80 past and present members of CRA's trailer club gathered at Pine Crest to renew acquaintances and catch up on Road Runners' activities at a weekend reunion, Sept. 12-13.

Twenty trailers rendezvoused at the mountain resort to enjoy the perfect balmy weather, Ralph East, CRA commissioner, said. All joined in the Sunday potluck and heard Carl Scholl, club president, report on past and future trailer outings.

The Convair group is making plans to attend the coming Border District Rally of Travel Trailer Clubs of America at Del Mar next month, Oct. 15-18. Scholl will be in charge of the local group's participation.

Baseball Season Workouts Start

Baseball workouts will start this Sunday for Convair, GD/E, S-C players who will form teams to compete in the Industrial League this season.

First workout will be Sept. 27 at 1 p.m. at University Heights playground. Another practice will be at the same place and time the following Sunday (Oct. 4), said Pete Beyrer of CRA headquarters.

League games will probably start Oct. 18.

Bill Creamer and Bill Murphy will be co-managers of the CRA entries this year.

All Convair, GD/E, S-C men and their dependents are eligible to try out.

Riders to Trek To Los Caballos

CRA horsemen will trek to Los Caballos this weekend (Sept. 26-27) for their last campout in the mountains for the season.

The Riding Club group will meet at the Horse Camp in Cuyamaca Park for a Saturday trail ride, said Commissioner Tommy Thomason, who with Luke Barbour (Dept. 171), is making arrangements.

Seventeen riders journeyed to the same site for their annual Labor Day weekend, Sept. 5-7. Nearly half joined in an all-day ride which took them 25 miles over the state riding and hiking trails through Cuyamaca Park on Saturday, arriving back in camp in time for the no-host steak fry.

That evening the group were guests of Bill and Doris Rogers, owners of the Cuyamaca cafe and store. The Riding Club Combo played for dancing.

Next regular meeting of the CRA group will be Oct. 1, 7:30 p.m., at Gillespie Field Clubhouse.

Fishing Club Alters Meeting Schedule

CRA Fishing Club will hold its next meeting the first Tuesday in October (Oct. 6), instead of the usual third Tuesday date, said Commissioner Bob Menzie. The meeting change was made to avoid vacation schedules.

Regular potluck dinner and business sessions now will be held at Gillespie Field Clubhouse throughout the fall and winter season. Summer gatherings were held at Pecan Park in July and August with Commissioner Menzie and his wife, Ruth, furnishing halibut for fish fries.

July winners in the monthly fishing contest were Chuck Szkala of Dept. 115 who won $10 first award for a 17-in. trout caught from Murray Lake. George Clark, retiree, got the $5 second prize for an 8-lb. barracuda caught off La Jolla Shores.

Joe Sopko was top August angler with a 31-lb. Chinook salmon caught in the Klamath River in Northern California. He won $10.

CRA Calendar

(Convair Recreation Association has some 30 activities in operation for Convair, GD/E, Stromberg-Carlson people. For information call CRA Headquarters, ext. 1245.)

★ ★ ★

AEROMODELERS — Flying sessions Saturday and Sunday mornings, 8 a.m. to 1 p.m., Clairemont Flying Site.

BASEBALL—Workout for IRC League team Sept. 27, 1 p.m., University Heights Playground.

BOWLING—Winter league play starts this week.

CAMERA CLUB—Meeting Oct. 4, 7:30 p.m., Photo Arts Bldg., Balboa Park.

FENCING—Workouts and instruction each Friday night, 7-10 p.m., YWCA, 10th & C sts.

FISHING CLUB—Regular potluck dinner and 7:30 p.m. meeting changed to Oct. 6 at Gillespie Field Clubhouse.

GARDEN CLUB — CRA-ARA meeting Oct. 7, 7:30 p.m., Floral Association Bldg., Balboa Park.

GOLF — Sign-ups begin today (Sept. 23) for Convair Plant Championships. Deadline Sept. 28. Call ext. 1705, Plant 1.

GUN CLUB — Troy trapshoot, Sept. 27; CRA club shoot, Oct. 4, both at Gillespie Field Range. Night ATA trapshoot tonight, Sept. 23.

HUNTER SAFETY — Register for three-week course by calling 448-1825.

ICE SKATING—Weekend outing to Big Bear Sept. 25-27. Thursday ice skating sessions for GD people, Mission Valley Ice Plaza, 6:30-8 p.m.

JUNIOR RIFLEERS—Regular shoot Oct. 3, 8 a.m., Gillespie Field Range.

MODEL RAILROAD — Work nights, Fridays, 7:30 p.m., open sessions, Sundays, 1-4:30 p.m., House of Charm, Balboa Park.

MOVIES — Reduced prices for GD people at State Theater, Euclid and El Cajon Blvd. General admission: adults, $1; children, 35c.

PISTOL CLUB — Club shoot Sept. 27, 9:15 a.m., San Diego Police Pistol Range, Federal Blvd. and Home Ave.

RADIO CLUB—Next meeting Oct. 1, 8 p.m., Harbor Drive club headquarters.

RIDING CLUB — Campout at Los Caballos Horse Camp Sept. 26-27. Meeting Oct. 1, 7:30 p.m., Gillespie Field Clubhouse.

ROCKHOUNDS—Meeting Oct. 8, 7:30 p.m., Gillespie Field Clubhouse.

SOFTBALL — "Slow pitch" league championship play-off Sept. 24, and if necessary, Oct. 1, Colina del Sol field, 8:15 p.m.

SPORTS CAR CLUB—Regular meeting Oct. 7, 7:30 p.m., Convair executive dining room. Installation dinner-dance Oct. 17.

STAMP CLUB — October meeting cancelled. Next meeting Nov. 5.

SWIMMING—Family swim nights cancelled until after first of year.

TENNIS — IRC tournament Sept. 26-27, Oct. 3-4, Morley Field.

WATER SKI CLUB — Skiing weekends on Mission Bay on phone-call basis. Call Gene Sevigny, ext. 1778, Plant 1.

Helen Wood Is Low In Women's Golf

Helen Wood of S-C was low net scorer in the GD Women's Golf Club three-club tourney held Sept. 12 at Mission Bay course.

Each girl was required to play the course with her three favorite clubs, and no others.

Runner-up was Emma Webb. Mary Ransom was third and Mabel Dunn, fourth.

Next month's match will be Saturday, Oct. 10, over Cottonwood course. Separate flights will be arranged for either nine or 18 holes.

Sports Car Drivers Plan Dinner-Dance

Annual dinner-dance for Convair's sports car drivers has been set for Saturday night (Oct. 17) to celebrate the CRA club's 10th anniversary and install new officers.

Past presidents of the Sports Car Club will be honored guests at the affair to be held in the Gillespie Field Clubhouse.

Members and guests will gather for a 6:30 p.m. "happy hour" followed by a catered dinner at 7:30. Ceremonies will be followed by an evening of dancing.

Mrs. Eloise Riggs, wife of Spud, Dept. 6, is chairman of the event with Bob Chillo and Hank Callihan, both Dept. 6, in charge of the program.

Details will be announced at the regular club meeting, Oct. 7, 7:30 p.m., in the Convair executive dining room.

STAMP CLUB DROPS OCTOBER MEETING

CRA Stamp Club members are cancelling out their October meeting because of conflict in dates with other philatelic activities in the area. Regular schedule for the Convair group will resume in November with a meeting on the first Thursday evening, 7:30 p.m., Convair executive dining room.

DISCOUNT OFFERED ON SCENIC FLIGHTS

Exchange tickets for sightseeing flights over San Diego are available to Convair, GD/E, and S-C people at employee services outlets. Tickets are worth 50 cents when exchanged at Pacific Southwest Airlines for a $3 scenic flight on Sundays. No reservations are necessary.

SWIM NIGHTS DISCONTINUED

Family swim nights were discontinued this month with the closing of the Mission Beach Plunge for its annual renovation. The free monthly swims for Convair, GD/E, S-C people probably will resume shortly after the first of the year, said Pete Beyrer of CRA headquarters.

Reductions Offered On 'Camelot' Prices

Exchange coupons, allowing 20 per cent reduction in prices to "Camelot" performances this week, are available at all Convair and GD/E employee services outlets.

The discounts are good only for the evening showings at the Fox Theatre the nights of Sept. 24, 25, and 26. Coupons must be exchanged at the theater box office at the time of ticket purchase.

Regular $5 seats are $4 with the coupons; $4.40 seats are reduced to $3.50; $3.80 to $3; $3.20 to $2.50; $2.50 to $2.

Pecan Park Will Go On Winter Schedule

Pecan Park, the CRA picnic grounds east of El Cajon, will go on winter schedule the first of October, said J. K. Field, manager of personnel services.

After that date the park will be open on Sundays only. The full-week schedule will be resumed next spring.

All GD families are welcome to use the park without charge or reservation any Sunday, said Field.

Pine Crest, the Recreation Association's mountain resort maintained for the benefit of Convair, GD/E, and S-C families, received a record play over the Labor Day weekend.

Arnold Schrock, park manager, reported that 63 campsites were occupied and at least 300 persons enjoyed the mountain area during the long holiday weekend.

SPORTS CAR CLUB VISITS PINE CREST

Eleven members of the CRA Sports Car Club drove to Pine Crest, CRA mountain resort near Julian, for two days of rest and recreation over the weekend of Sept. 11-13.

GD/E GOLF TOURNEY SET FOR OCTOBER

Next golf tournament scheduled for Electronics and Stromberg-Carlson members of the GD/E Golf Club will be Sunday, Oct. 4, at Carlton Oaks Country Club. Starting time is 7:30 a.m.

Casual Wish Leads Father To Collection Worth $10,000

Boys usually feel fortunate to have an electric train and some youngsters with enthusiastic fathers sometimes manage to have more. But Gordon and Hans Nesbitt, 11 and 6 years old, and their father, G. A. Nesbitt (GD/Pomona), have a train collection that fills their three-car garage.

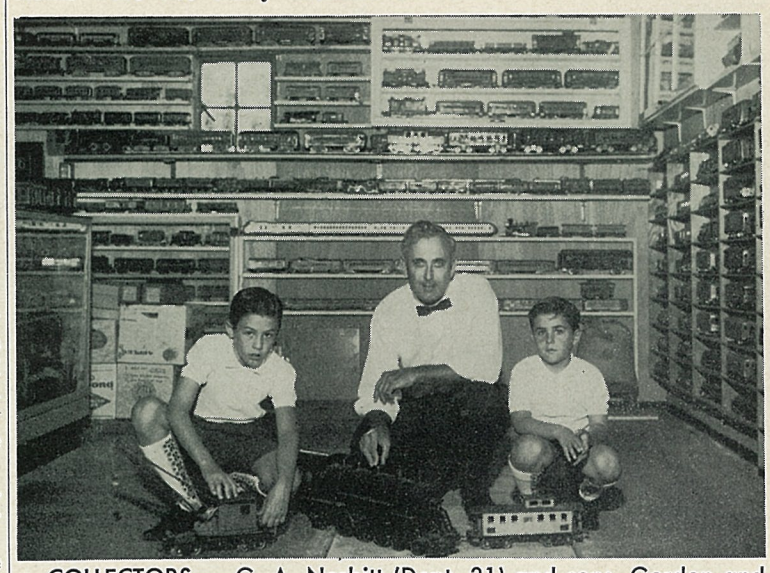
The Nesbitt collection of pre-World War II toy trains is valued at approximately $10,000 and contains more than 600 pieces.

It all started four years ago when the older son wanted a train for Christmas. Nesbitt obtained a new set but was disappointed in its quality and decided to buy a used one made prior to World War II.

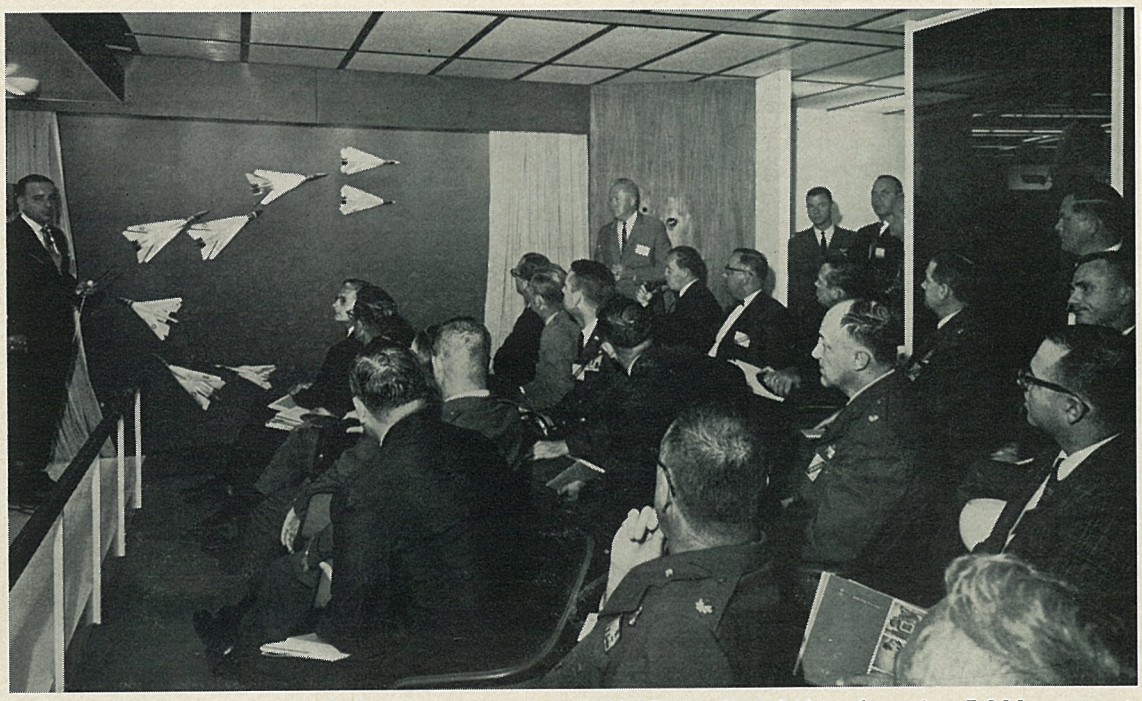
Upon discovering that used trains were not easily obtained because most were in hands of collectors, Nesbitt became interested and soon was a collector himself.

Trains manufactured 20 to 40 years ago now fill glass display cases and wall shelves in the Nesbitt garage. Most are obtained from individuals who have had them stored for years and sell them after seeing the Nesbitt collection. Others are obtained in swaps with other collectors.

Nesbitt belongs to Train Collectors Association which has 1,000 members throughout U. S. and about 100 members in the Los Angeles area. Regular area meetings are held and collectors attend to see displays, sell, buy and trade.



COLLECTORS — G. A. Nesbitt (Dept. 21) and sons, Gordon and Hans, have collection of pre-World War II toy trains valued at $10,000. Collection which fills three-car garage contains more than 600 pieces.



SMASH HIT — General Dynamics presentation at Air Force Association, featuring F-111, was outstanding highlight of Washington, D.C. convention. A. E. Allis of GD/Fort Worth is shown addressing one of 44 groups briefed on new fighter.

TOP BRASS — Visitors included many distinguished civilian and military leaders, including Air Force Secretary Eugene M. Zuckert, right, shown here in conversation with GD/Fort Worth's A. P. Madsen.

1,000 Key Leaders Hear F-111 Story

The story of F-111 development through wind-tunnel testing was "enthusiastically received" by over 1,000 key Air Force, industry and civic leaders in Washington recently.

All told, GD/Fort Worth engineers gave the 15-minute briefing 44 times, mostly to standing-room-only groups at the Air Force Association convention.

A. P. Madsen, chief of aerospace model tests, GD/FW, and A. E. Allis, assistant project engineer, delivered all briefings.

Top-level visitors to the exhibit included Hon. Eugene M. Zuckert, Secretary of the Air Force, and Roger Lewis, General Dynamics president.

Four models representing various F-111 design development milestones were shown on rotating columns.

"Our first designs (in 1960) were long, slender airplanes," Madsen said, "but wind-tunnel tests were disappointing."

As a result, GD/FW design engineers began working on shorter airplanes with larger frontal areas. This resulted in a lighter, more efficient structure.

At this juncture, Department of Defense specified a need for a plane to fit not only TAC, but Navy requirements. Happily GD's new design fitted their requirements: a shorter airplane for easier stowage and handling aboard carriers. This configuration was called model 1,000.

Extensive testing of this 1/20th scale model in the GD high-speed wind tunnel at San Diego (and later NASA tunnels at Langley Research Center) proved the feasibility of a bi-service concept, Madsen pointed out.

In October, 1961, the official request for proposal was released. Grumman joined GD/FW as a "Navy oriented" partner.

"We revised configuration 1,000 to include a large wing area to meet Navy carrier suitability requirements," Madsen said. "The result was model 10-7.

Further studies led to more improvements and ultimately model 65B was developed, followed by model 12.

"At this time, we took advantage of another new technique developed by NASA in the SST program," Madsen said. "This approach blended the wing and body."

"Results on this model were highly gratifying," Madsen continued. This was the design that won the competition in November, 1962.

GD/FW has conducted tests in six private tunnels and 14 government tunnels throughout the country. By first flight, models will have flown about 20,000 hours.

A highlight of the AFA convention was the aerospace education reception and luncheon, which GD sponsored for the second year.

Gen. B. A. Schriever, Commander Air Force Systems Command, spoke at the affair.

NUMBER TRAINING ON OWN TIME AT GD/FW AT NEW PEAK

Late registration for fall semester in-plant TCU courses — already at a record peak — will be continued through this week in GD/FW educational services.

Nearly 450 employees signed for 38 courses during regular registration. This represents the largest number ever to enroll for in-plant courses in a single semester. All courses will be taken on the employee's own time.

Of the 38 classes, 34 are being held for first shift, four for second shift.

In addition to in-plant registration, another estimated 200 enrolled in college courses on campuses at TCU, Arlington State and other area colleges.

Still another estimated 200 employees enrolled in the TCU-SMU graduate engineering program. In this program, students can take 12 hours of required math courses at TCU and the required engineering courses on the SMU campus.

Technical Institute courses — both in-plant and at Tech — attracted another estimated 350 employees. Predominantly technical in nature, the curriculum also includes a number of business and general courses in the adult-education area.

All told, this makes about 1,200 GD/Fort Worth employees who are going to school this fall on their own time.

Paschal and Fields Guest Lecturers

Frank Paschal, health physics administrator, and Dr. R. E. Fields, staff specialist in nuclear research and development, both of Fort Worth division, were guest lecturers recently at a week-long course on "Management of Radiation Accidents."

The meeting was held in Austin and was co-sponsored by the State Health Department and U. S. Public Health Service.

General Dynamics Men To Be Prominent At National Space Engineering Parley

General Dynamics men from four divisions are involved in the planning and the program of the National Aeronautic and Space Engineering and Manufacturing meeting sponsored by Society of Automotive Engineers Oct. 5-9 in Los Angeles.

J. H. Famme, Convair division president, is a member of the manufacturing forum executive committee and aeronautics program planning committee. Other Convair men participating are B. J. Simons, B. G. Glass, Donald Conover and W. H. Steurer.

GD/Astronautics will be represented by E. D. Bryant, also on the manufacturing forum executive committee, as is G. E. Sylvester of GD/Pomona. Astro's F. D. Applegate and W. W. Withee are committee members for the aero meeting's program planning.

Astro men giving papers are J. L. Cody, E. D. Heller, E. S. Saari, John Burnett, J. F. Brady Jr., C. J. Dunn, R. W. Gerber, D. C. Valkema, J. F. Hinton, R. W. Hagen, H. Pallulat, and R. Klawa. R. W. Gerber is organizer of the Ground Support Equipment session. M. D. Weisinger, formerly of Convair, is co-organizer of Materials and Manufacturing Techniques for Supersonic Aircraft.

Sylvester is co-organizer of Electronic Packaging session with W. H. Friedlander, also GD/Pomona, co-chairman of the same section.

W. M. Rowell of GD/Fort Worth is scheduled to give a paper the closing day of the session dealing with hydraulic subsystems for aircraft.

Copies of the program are available from Applegate and Withee at Astro and from Simons, Glass, or Steurer at Convair.

REDEYE DISPLAY SENT TO ALABAMA

A GD/Pomona booth featuring the shoulder-fired Redeye missile will be exhibited at the Alabama State Fair (Birmingham, Oct. 5-10) as a part of the Army Missile Command's display of modern weapons.

GD/FW MAN EARNS MASTER DEGREE

William F. Black, Fort Worth Dept. 162-5, was recently awarded a master of science degree in mechanical engineering from Southern Methodist University.

Knowledgeable Young Students Quiz Experts

"Solar radiation . . . closed ecological systems . . . plasma propulsion . . . lasers . . . space navigation . . . orbit equations . . ."

These and other topics were bantered about with such easy familiarity earlier this month at GD/Astronautics that an uninformed listener might have assumed that a meeting of distinguished scientists was taking place.

The experts were there, all right — six of GD/Astro's most eminent: Dr. J. M. Lagerwerff, B. G. MacNabb, B. A. Mendoza, J. W. Crooks, Dr. D. H. Sowle, Dr. D. H. Garber. But the give-and-take on esoteric topics was originated (and knowledgeably) by the balance of the assembly — some 90 teen-age boys.

The youths were visiting GD/Astro as part of a Navy-sponsored tour of scientific and military establishments. They were "Science Cruisers," guests of the 11th Naval District, an honor each had earned by winning local, regional or national Science Fairs earlier this year.

With Ray Blair, Astro manager of community relations, as host, the boys were given a slide-illustrated introduction to General Dynamics, and taken on a pictorial tour of Astro facilities. Then, for nearly an hour, questions flew hard and fast as they put their queries to the experts.

Concluding the panel session, Blair asked MacNabb, GD/Astro's director of test engineering, to summarize his advice to pre-college youths hoping to make a place for themselves in aerospace fields.

MacNabb pointed to the infancy of the space age, saying, ". . . all we've done so far is to push the Wright brothers off the hill at Kitty Hawk."

He told the youths that opportunity in the field was unlimited, regardless of the profession they chose, citing space law, celestial mechanics, space medicine, etc., as examples. He urged them to "get the fundamentals in physics, chemistry, math."

Mendoza emphasized another side to the coin. "Take a ton of English, speech, public speaking, writing," he said, explaining that other requisites to success were a knowledge of philosophy and psychology—human dynamics.

"No matter what brilliant schemes you may come up with," he said, "they're worthless unless you can communicate — convince someone else of their value."

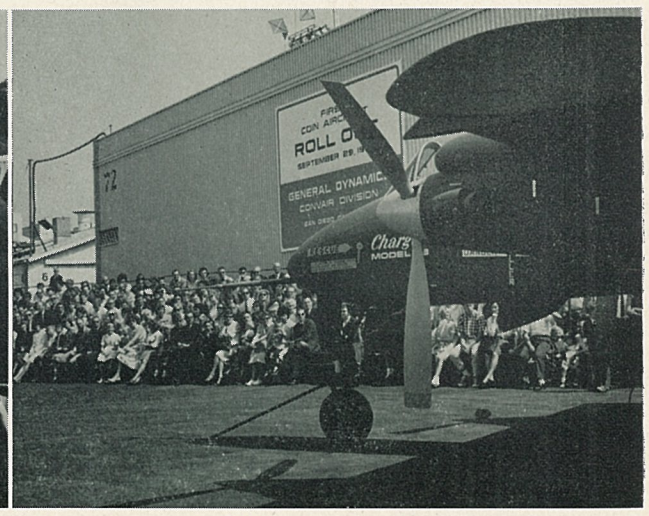
QUIZ SECTION — Group of sharp young students visited GD/Astronautics recently as part of Navy sponsored tour and kept panel of experts on their toes with questions. At right, Astro's Ray Blair, standing, was moderator and panel included Dr. J. M. Lagerwerff, B. G. MacNabb, B. A. Mendoza, J. W. Crooks, Dr. D. H. Sowle, Dr. D. H. Garber. At left is photo study in concentration as boys, Science Fair winners from Western states, considered penetrating questions to tax hosts.

GD

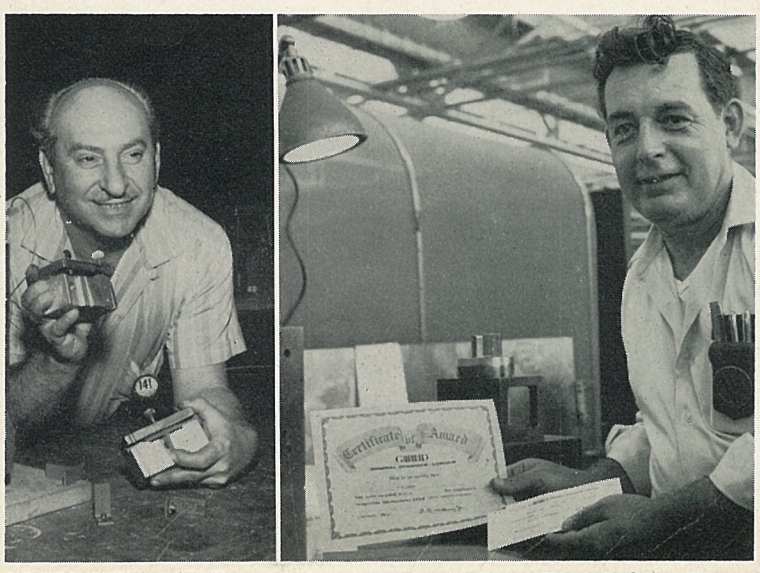
SAN DIEGO EDITION
(Serving GD/CONVAIR
and GD/ELECTRONICS)

GENERAL DYNAMICS NEWS

Vol. 17, No. 21 | PUBLISHED BY GENERAL DYNAMICS CORPORATION | Wednesday, October 7, 1964



FAMILY AFFAIR—Hundreds of Convair families had a first look at Convair's Model 48 in a Sunday preview before roll-out date when all employees who had worked day and night, and weekends for last six months to rush plane through to completion were invited to bring wives and children in-plant for special "dry run." Sturdy, stubby, olive-green craft was put through paces with careful coaching from "family." More photos, page 3.



IDEA PAYOFF — Don Yaeger (Dept. 115) and Ralph Crise (Dept. 141) received substantial cash awards last month for Employee Suggestions to save the Convair division time and money. Yaeger (right) will get a total of $391.80 and Crise $200 for new tools they devised to expedite work.

Two Pocket Cash Awards For Ideas Involving Boost in Efficiency

Two GD/Convair "thinking" men hit the jackpot late last month with their suggestions to save time and money for the company.

Don H. Yaeger of Dept. 115 received half of a $391.80 Employee Suggestion award and Ralph M. Crise, Dept. 141, pocketed first payment on $200. Both will receive the balance in six months.

Yaeger was rewarded for his development of indicator attachments for checkout of parts in the machine shop.

His attachments are used in conjunction with height gauges to check the exact contour of parts to templates. A dial indicator on the attachment shows how the parts compare to their original patterns, within .001 accuracy.

The new aid eliminates the precariousness of visual checking, greatly reduces scrappage, saves time for both the machine shop and inspection.

Yaeger, who has been with Convair 10 years — all in Dept. 115, was promoted to assistant foreman the same day he was handed his sizable check.

Crise, long-time Convair mechanic, got in the big money on his first shot at an ES pay-off.

He devised tools to drill details for C-141 sub-assemblies in advance to eliminate several manual operations of positioning and bolting the small clips into place during each sub-assembly set-up.

By drilling the small parts ahead of time, a great deal of time is saved on the sub-assembly fixtures, and rejections are reduced since the tools serve as locators for true center on the parts.

Crise joined Convair in January, 1940, and worked on the B-24, all the Convair-Liner series, 880/990 wing and spares before going into C-141 sub-assembly when it was first set up a couple of years ago.

EMPLOYEE SERVICES OFFERS FREE PHOTOS

All photos of General Dynamics planes and missiles still on hand at Convair employee services are being given away, free of charge, to anyone who wants them. On the counter are color and black and white prints of the Terrier missile, RB-36, B-58, Convair 440.

First COIN Flight Near, 4,000 Witness Roll Out

First flight of General Dynamics/Convair's new multi-mission airplane, Model 48, is due any day, coming close on the heels of the unveiling of the limited warfare airplane at roll-out ceremonies last week (Sept. 29) at the San Diego plant.

The new plane, which will be able to perform armed reconnaissance, counter-insurgency (COIN) operations, surveillance and observation, transport, and other close-support missions, will then be prepared for an extensive 100-hour flight test program to prove its sturdiness. Convair's Chief Test Pilot John Knebel, who has been at the controls of every Convair model from the XFY-1 "Pogo" to the latest 990 jet transport, will test flight the new plane.

About 4,000 spectators, including high-ranking officers from each branch of the military service, saw the twin-boom, high-tail Model 48 roll out of its production hangar. Two men, unassisted, later pulled the airplane into position for a demonstration of the extra-large flaps on the trailing edge of the wing that help give the airplane its STOL (slow take-off and landing) capability.

At the rollout ceremony, Roger Lewis, president of General Dynamics, said the company has long recognized the growing need for a rugged, low-cost, highly maneuverable aircraft that could be deployed and easily maintained in forward combat areas. Preliminary design and development of the Model 48 were started more than two years ago.

"We decided to proceed directly with a prototype airplane, at the same time we submitted our technical proposal to the Bureau of Navy Weapons," Lewis said. "We saw a definite requirement for this type of aircraft and wanted to have a flying, off-the-shelf article ready for any limited-war emergency."

"Under an accelerated program," he said, "General Dynamics could deliver 156 fully-tested, combat-ready airplane within 24 months after go-ahead."

The president of Convair division, J. H. Famme, explained that although the Model 48 is a prototype, "the division has made every effort to build it as a production airplane on the first try so that no major redesign would be necessary for volume production."

Construction of the company-funded prototype took less than six months, including engineering, tooling and fabrication. The Model 48 meets or exceeds all

(Continued on Page 3)

Number For Charger 'Gift' of Convair Man

A Convair man has a very special interest in the markings of the new Charger Model 48—he made it possible for the plane to bear the number, N28K, by which it always will be known on FAA records.

Frank Hernandez, Dept. 48, "owned" No. N28K, which had been assigned him when he applied over two years ago for a license for an original design experimental full-scale plane of his own, now under construction. A few weeks ago Federal Aviation Agency officials asked if he would be willing to accept another number in exchange as they needed a small number. These are at a premium and usually reserved for small craft such as helicopters.

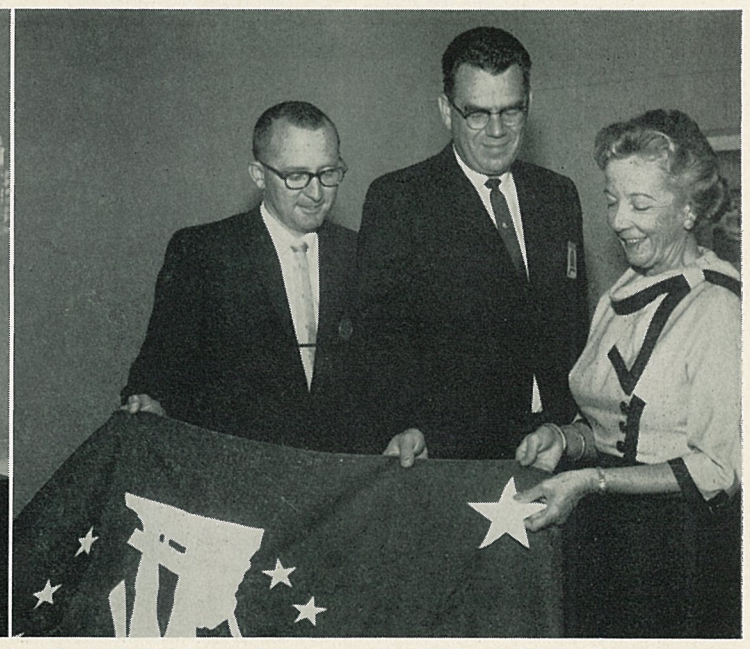
Hernandez agreed. Then, at the roll-out of the Model 48 he discovered just where his number went!

Kits to Modify F-106 System

General Dynamics/Convair has been awarded a contract from San Antonio Air Materiel Area valued at approximately $1,650,000 for the modification of the air conditioning system in the F-106A/B aircraft.

In addition to the aircraft modification kits, Convair will provide kits for modifying spares in stock, spare parts to support the aircraft modification, and all required technical data.

(Continued on Page 2)



NEW STARS — In recognition of outstanding participation in U.S. Savings Bonds purchase by payroll deduction, Barbara Chandler, Treasury Department area manager, presented "stars" to Minute Man flags recently. At left are Convair President J. H. Famme and J. K. Field, manager of personnel services, accepting for Convair division (70.3 per cent participation). In photo at right, C. V. Shannon, left, resident manager of San Diego Stromberg-Carlson facility, and D. C. Prim, resident manager of GD/Electronics at San Diego, accept star recognizing 75.6 per cent participation.

Log Book Entries

Service Emblems

CONVAIR

Service emblems due during the period Oct. 1 through Oct. 15.

Twenty-five-year: Dept. 102, W. L. Berkheimer; Dept. 131, W. R. Eade, R. B. Thompson; Dept. 401-5, Alois Kirsch.

Twenty-year-: Dept. 6-21, P. L. Akins.

Fifteen-year: Dept. 6, Mildred I. Huey, V. J. Langpap; Dept. 34-6, Nora D. Bone, Margaret D. Hand; Dept. 102, M. W. Small; Dept. 119, S. H. Delgadillo.

Ten-year: Dept. 6, R. W. Anderson, A. L. Cappelen Jr., B. J. Hanzlik, J. A. Holland; Dept. 97-3, E. J. Whitley.

ELECTRONICS

Twenty-five-year: Dept. 40-74, J. R. Graves Jr.

Ten-year: Dept. 68-53, E. W. Barrett.

Awards

CONVAIR

Employee Suggestion Awards approved for periods ending Sept. 18 and Sept. 25.

Dept. 27, C. L. Ford, $100 (final payment).

Dept. 42, R. H. Feeley, $10.

Dept. 48, G. Garten, $11.75.

Dept. 101, G. K. Phares, $493.79 (partial payment).

Dept. 115, S. Brown, $10; W. Ross, $43.44.

Dept. 119, I. D. Bellows (two awards), $10 each; L. O. Smith Sr., $10.

Dept. 400, G. Radici, $30.31.

Cost Improvement Proposals approved for period ending Sept. 18.

Dept. 91, E. R. Hoag.

Dept. 115, W. J. Durflinger (two proposals); B. N. Waite and W. J. Durflinger (joint proposal).

Retirements

CONVAIR

BARRON — James, Dept. 62-2. Seniority date Oct. 16, 1940, retired July 14.

HEBB — Carl H., Dept. 25-6. Seniority date May 24, 1954, retired July 27.

JARRARD — Rogers L., Dept. 42-1. Seniority date Oct. 19, 1950, retired July 27.

McDONALD — Donald, Dept. 140-0. Seniority date Oct. 3, 1946, retired Aug. 28.

McMAHON — Everett B., Dept. 25. Seniority date March 5, 1952, retired Sept. 16.

PERKINS — Alfred M., Dept. 14-4. Seniority date Nov. 30, 1951, retired Sept. 17.

STROMIE — Thomas D., Dept. 15. Seniority date April 27, 1950, retired July 1.

WILSON — Roland C., Dept. 48-78. Seniority date Aug. 10, 1956, retired July 18.

Personals

CONVAIR

We wish to thank friends at Convair for the beautiful floral tribute and kindnesses shown at the death of our wife and mother.

Larry and Lynn Frein, Dept. 102.

* * *

We are deeply grateful for the thoughtfulness of Convair friends for sending flowers, cards, and expressions of sympathy when we lost our daughter.

Mr. and Mrs. G. A. Dewey, Dept. 131.

Deaths

CONVAIR

COONEY—John M., Dept. 14-4. Died Sept. 30. Survived by two sons, Robert J. and George T., both of San Diego.

GUIDOTTI—Edward A., Dept. 25. Died Sept. 14. Survived by wife, Thelma, son, daughter, three brothers and two sisters.

PACK—Herman O., Dept. 99. Died Sept. 24. Survived by wife, Mary, son, stepdaughter, two stepsons.

STREED—Rodney W., Dept. 6. Killed in auto accident Sept. 25. Survived by wife, Donna and daughter, Cynthia.

WALKER—Max, Dept. 99. Died Sept. 26. Survived by wife, Beulah, two daughters.

Vital 'Little Things' Topic Of Club Talk

"Little Things Mean a Lot," will be the subject of E. T. Clare, Cohu Electronics, Inc. vice president, when he appears as featured speaker at the Oct. 14 meeting of the Convair Management Club.

Ed Clare

Clare, who held important posts in Convair and Astronautics divisions before joining Cohu Electronics in 1960, will explain the "little bit extra" which makes an outstanding manager. In his words, "the difference between success and failure is infinitesimal."

Clare joined Convair in 1952 and was assistant chief electronics engineer in the Model 7 group which later became Astronautics division. He served as senior project engineer at Astro from 1957-59 when he was named support service manager.

Members attending next Wednesday's meeting in Convair's main cafeteria on Pacific Hwy. will see the club's first Sportsmanship Award presented to the outstanding player in the plant's softball tournament.

Four other trophies for sportsmanship in division sports and activities will be presented throughout the club year. They will go to top sportsmen in bowling, golf, shooting (rifle, shotgun, pistol), and Toastmasters. D. D. Dimmitt, Management Club's sports commissioner, and special committees for each activity will choose recipients.

Sportsman of the Year award for the overall champ sportsman will be awarded next spring before the close of the club year.

MacSave-it trophy and Mug of the Month also will be given at the Oct. 14 meeting.

Social hour will start at 5 p.m. with a buffet dinner at 5:30 p.m., said T. W. Ochodnicky, chairman for the sponsoring engineering department.

Tickets are $1 each and are now on sale at all regular outlets.

CONVAIR GOLF TEAM WILL PLAY NAS

Convair President Joe Famme will head a dozen valiant Convair golfers who will defend the division's honor on the links next week against a challenging group from Naval Air Station, North Island. The battle will be staged Wednesday (Oct. 14) over Singing Hills course.

GD/Convair men who recently received 25-year service emblems are, from left, Thaine Allison, Dept. 401-5; W. E. Nuckles, Dept. 401-4; and H. W. Callihan, Dept. 6-22.

General Dynamics NEWS

Published by General Dynamics Corporation, One Rockefeller Plaza, New York, N. Y. 10020; with editorial headquarters at 3302 Pacific Highway, San Diego, Calif. 92112, P.O. Box 1950, telephone 296-6611, ext. 1071. Logan Jenkins, editor-in-chief.

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Affiliated editions of General Dynamics NEWS are published in Rochester, N. Y., covering GD/Electronics and Stromberg-Carlson, editorial offices, 100 Carlson Road, HUbbard 2-2200, ext. 2555. Fred E. Voss, editor; and at Groton, Conn., covering GD/Electric Boat, editorial offices at Groton, HIlltop 5-4321, ext. 300 and 513, Joseph Tracey, editor.

BOOK "SALESMAN"—Nick Keough, Convair manager of engineering prototype facility, turns super salesman at book stand he and his wife operate for Sierra Club. With them are son, Andy, and daughter, Elizabeth.

Convair's Nick Keough Leader In Affairs of Sierra Club

Nick Keough, Convair's manager of the engineering prototype facility who is best known for his ability to push such products as Little Joe II and, most recently, COIN through the manufacturing process, operates a book store on the side.

And, he proves as able a salesman as he is a manufacturing manager, as he touts his wares at Sierra Club meetings, where he and his wife, Helen, set up shop each third Friday.

The Keough team, as chairmen of the sales group, brought $1,000 into the coffers of the organization during the last year to help support its never-ending campaign to conserve the natural and scenic beauty of the country.

"He always has a special," said Carl Swedelius, chairman of the San Diego chapter which numbers around 700 members, as he praised Keough for his untiring efforts to raise money for the group.

The Keoughs constantly survey book lists and local stores for publications to fill the many-sided interests of Sierra Club members — a range that takes them from walks along a beach to exploring glaciers, or tying knots and slings.

Their home phone is ringing many times between meetings as members inquire what's on the book shelf or ask for a certain book on mountaineering.

The family, which includes son Andy and daughter Elizabeth, has participated in Sierra Club activities the last three years.

The organization, which now encompasses over 25,000 people in all parts of the country, had its birth in 1892 during John Muir's fight to save Yosemite as a national park. Since then it has spread across the nation with 17 chapters from San Francisco headquarters to New York and members banded together in their common desire to "explore, enjoy, and protect" the natural scene.

CONVAIR CON-TRIB PLEDGES $50,000 FOR UNITED FUND

GD/Convair Employees' Con-Trib-Club has pledged $50,000 to support of the United Community Services over the next year on behalf of all Con-Trib-Club members.

The annual UCS pledge represents the major portion of contributions through payroll deductions to Con-Trib-Club and helps finance the 79 San Diego area charitable organizations included in the UCS budget.

The Con-Trib contribution releases all members from further obligation to donate to UCS-supported organizations during the year.

Distribution of year-end funds saw $3,500 divided between five organizations at the Con-Trib Committee's Sept. 29 meeting. Volunteers of America received $500. Four branches of Family Service Association were voted a total of $1,500 — Homemakers of San Diego, $700; Foothills Branch, $300; San Dieguito Branch, $250; Imperial Beach Branch, $250. Children's Dental Health received $500 and like amounts went to the San Diego Council of Churches and the Crossroads Foundation.

In addition, the committee approved a donation of $1,000 to the Boy Scouts of America for capital improvements at the Balboa Park headquarters.

C. R. Smith Tours Air Industries

C. R. Smith of Convair's structures group began a month-long tour of aircraft industries throughout the country this week as he begins to collect data for a fatigue study for the Naval Air Engineering Center.

Smith, fatigue specialist, will visit GD/Fort Worth, Boeing Co. at Wichita, Kan., McDonnell at St. Louis, Mo., Lockheed-Georgia at Marietta, Ga., North American Aviation at Columbus, Ohio, and Wright-Patterson AFB, Dayton, Ohio. Information gathered will be incorporated with Convair test data on aircraft interference fit fasteners.

Smith will wind up his trip with stops at Toronto and Montreal, Canada, where he will be guest speaker at local sections of the Society for Experimental Stress Analysis.

He will attend the Society's annual fall meeting in Cleveland, Ohio, Oct. 28 to present a paper, "Interference Fasteners for Fatigue Life Improvement."

C. F. Carpenter of Convair's Little Joe II flight test program also will speak at the same meeting on "Measurement and Analysis of Flight-Test Landing Loads for F-106 Fatigue Life Estimates."

GD/E and S-C Wives To Meet For Lunch

Regular monthly luncheon for all wives of GD/Electronics and Stromberg-Carlson employees in San Diego will be tomorrow (Oct. 8) at the Kona Kai Club on Shelter Island.

Social hour is at noon; luncheon at 12:45 p.m.

The monthly get-togethers are held the second Thursday of each month for all GD/E and S-C wives. No formal invitation is necessary, however reservations must be in by the preceding Monday.

Talk on Lasers Set For ASQC Meeting

S. H. Logue, GD/Astro electronic research group engineer, will talk on Lasers under the title, "The Light of Your Life," at the Oct. 12 meeting of the San Diego Section, American Society for Quality Control at the Bronze Room and Restaurant, La Mesa. W. J. Martin, Convair director of reliability, will moderate. Tickets may be purchased from Boosters at GD plants.

Top Military Men See COIN

Among top ranking military and governmental officials present at the roll-out of GD/Convair's COIN craft were:

Maj. Gen. Fred Ascani, Deputy Commander, Research and Technology Division Element, Wright-Patterson AFB, Ohio; Vice Admiral Paul D. Stroop, Commanding Officer Naval Air Forces—Pacific Fleet; Maj. Gen. F. C. Tharin, Commanding General Marine Corps Air Bases West; Vice Admiral John B. Colwell, Commanding Officer Amphibious Force, Pacific Fleet; Vice Admiral Paul H. Ramsey, Commanding Officer Naval Air Forces, Atlantic Fleet; Rear Admiral Max Reynolds, special assignment CNO; Brig. Gen. T. S. Jeffrey, Deputy for Systems Management, Aeronautical Systems Division, Wright-Patterson AFB, Ohio; Brig. Gen. Gil Pritchard, Commanding General USAF, Special Air Warfare Center, Eglin AFB, Fla.; Cdr. J. D. Stevens, representing the Embassy of Australia, Washington, D. C.; Col. Luther Jones, representing Brig. Gen. Howard F. Schlitz, Army Aviation Material Command; Capt. J. R. Middleton, Navy BUWEPS Fleet Readiness Representative, Pacific; Col. Lester Schockner, Army Aviation Command, Ft. Ruckner, Ala.; Lt. Col. C. W. Atterholt, Chief San Diego Procurement Dist.; Cdr. R. A. Evans, BUWEPSREP, SD; A. J. Evans, acting director Aeronautics Division NASA Headquarters, Washington, D. C.; Charles Kirbow of the Senate Armed Services Committee, Washington, D. C.

Voters Stuff Ballot Boxes

Convair voters had stuffed the fire department's ballot box with more than 2,000 votes for their favorite beauties at preliminary tabulation last week in the annual "Miss Torch" contest.

Fire Chief D. D. Dimmitt says that each mail brings in nearly 100 marked ballots and that people are coming to the fire station constantly throughout breaks and lunch periods to drop ballots in the box.

All votes must be in this week. Counting of ballots will start this Friday with the 1964 fire queen to be announced next week. Names may be written on any slip of paper and dropped in the box through Oct. 9.

Observing National Fire Week (Oct. 4-10) demonstrations are being held every day this week at the fire station during the lunch hours, from 11 a.m. until 1 p.m. Any group or person who wants to put out a fire can do it, under direction of the plant's firemen.

Kits to Modify F-106 System

(Continued from Page 1)

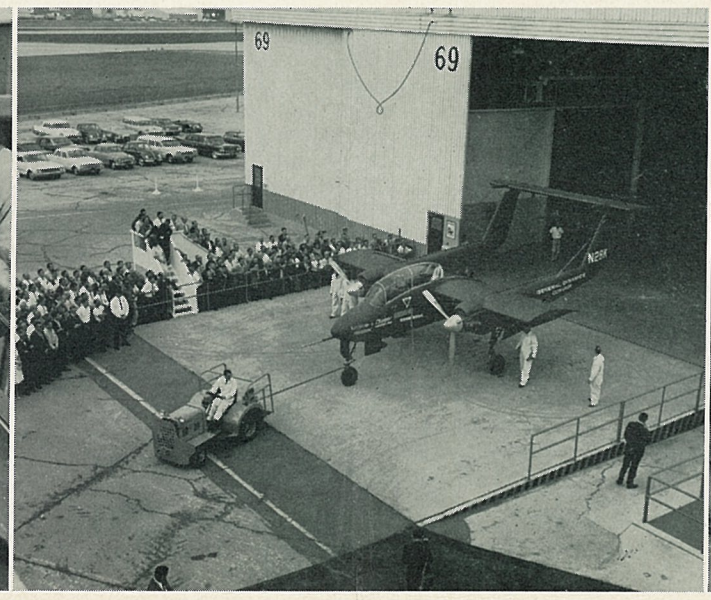
The current task evolved from an engineering contract issued by SAAMA for a feasibility study, flight test, fabrication, and installation of prototype kits.

The installation and proofing of the prototype kits were completed and approved in July of this year. Due to the high priority placed on this modification by the Air Force, SAAMA issued a letter contract in March, 1964, for production of follow-on kits. As a result of need to expedite the program, initial shipments were made the third week in September and completion date for the order is set for May, 1965.

Fabrication is being done in Convair's sheet metal, processing and welding departments with service parts administering contractural details.

Actual installation in the Convair-built jet interceptor will be accomplished by Sacramento Air Materiel Area, Calif.

ROLL-OUT CEREMONY—Roger Lewis, General Dynamics president, heralds fully-completed and ready-to-fly Model 48, Convair's new limited warfare craft, before a full house of military, governmental, civic officials, press, television, radio representatives at Sept. 29 "coming-out" ceremony in San Diego. Dignitaries introduced by Convair President J. H. Famme from speakers' stand were San Diego Mayor Frank Curran; Ernest White, IAM regional vice president; Vice Adm. Paul D. Stroop, Commanding Officer Naval Air Forces, Pacific Fleet; Maj. Gen. Fred Ascani, Deputy Commander, Research and Technology Division Element, Wright-Patterson AFB, Ohio; Maj. Gen. F. C. Tharin, Commanding General Marine Corps Air Bases West; Col. Lester Schockner from Army Aviation Command, Fort Rucker, Ala.; Lt. Col. C. W. Atterholt, Chief of SD Air Procurement District; Cdr. R. A. Evans, BUWEPSREP, San Diego. Convair executives on stand were W. W. Fox, director of engineering; James E. Fink, program manager of Model 48; C. W. Frick, vice president engineering; I. M. Laddon, GD director. In rear of stand Convair engineering specialists were stationed to answer technical questions of guests. Directly in front are few of wide range of weapons—bombs, rocket pods, missiles—aircraft can carry.



ONCE-OVER—Col. L. L. Evers, Army Special Forces, Fort Bragg, N.C., tries out cockpit of Convair's new COIN craft with assistance of Convair Chief Test Pilot John Knebel after Sept. 29 formal ceremony when visitors had a chance to inspect plane. At far right are four Convair men who had vital roles in culmination of project, (from left) N. R. Keough, manager of engineering prototype facility; J. E. Fink, COIN program manager; J. M. Adamson, director of design development; James Wainwright, in charge of engineering design. Center shot shows pull-out of Model 48 from prototype facility as climax to unveiling ceremony.

Convair's COIN, an Off-the-Shelf Aircraft, Unveiled Before 4,000

(Continued from Page 1)

requirements set forth in the Navy request.

Famme said the airplane will be able to operate from rough unprepared fields and take off with a ground run of only 225 feet. Fully loaded for an armed reconnaissance mission, the aircraft will be able to take off and clear a 50-foot obstacle in less than 500 feet. The Model 48 also could operate from an aircraft carrier unaided by catapults or arresting hooks and can be converted for amphibious operation.

"In addition to its basic combat mission," Famme said, "the Model 48 has been designed to carry out a wide range of secondary utility missions without compromising its combat capabilities. As a paratroop transport, the Model 48 will accommodate six fully-equipped jumpers in the basic fuselage bay. As a cargo carrier, the airplane will carry 2,000 pounds of supplies. In the photo-reconnaissance role, up to 2,000 pounds of photographic or other sensor gear can be carried."

Model 48 armament consists of four 7.62-mm machine guns—two guns being pod-mounted on each side of the fuselage. Ordnance includes a wide range of bombs, rocket pods, missiles, guns.

The Model 48 is a lightweight, two-place airplane with twin booms and a high, horizontal stabilator. Power is supplied by two 650-horsepower Pratt & Whitney T74 turboprop engines that drive opposite-rotation propellers. The short, constant-section wing has full-span flaps that are designed to be completely immersed in the propeller slipstream, thus providing maximum lift for short takeoffs and landings. All flight control systems are manually operated.

The pilot and observer sit in tandem ejection seats and have excellent all-around visibility through the bubble canopy. Behind the cockpit, a large utility bay provides transport and air-drop capability for cargo, bombs, or paratroopers. The bay also will accommodate photographic equipment for reconnaissance missions or can carry a complete propeller and engine assembly for replacement in the field. Thus, the Model 48 has the unique capability of providing its own logistic support.

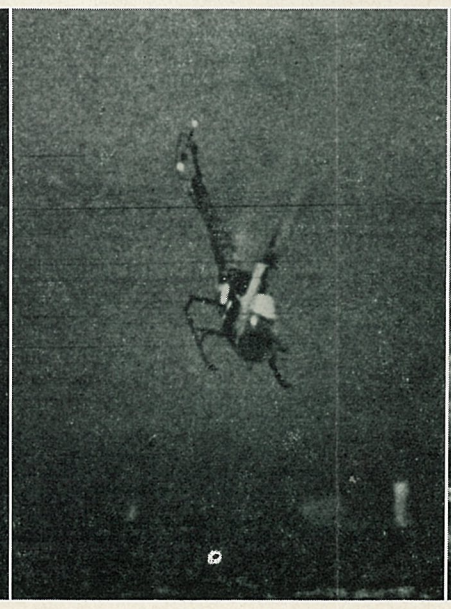
For its primary armed reconnaissance mission, the Model 48 will carry only the pilot and will be armed with four MK81 bombs. It will take off and clear a 50-foot obstacle in less than 500 feet, cruise 500 nautical miles at better than 200 knots, loiter over its target area for two hours, return and land in less than 500 feet.

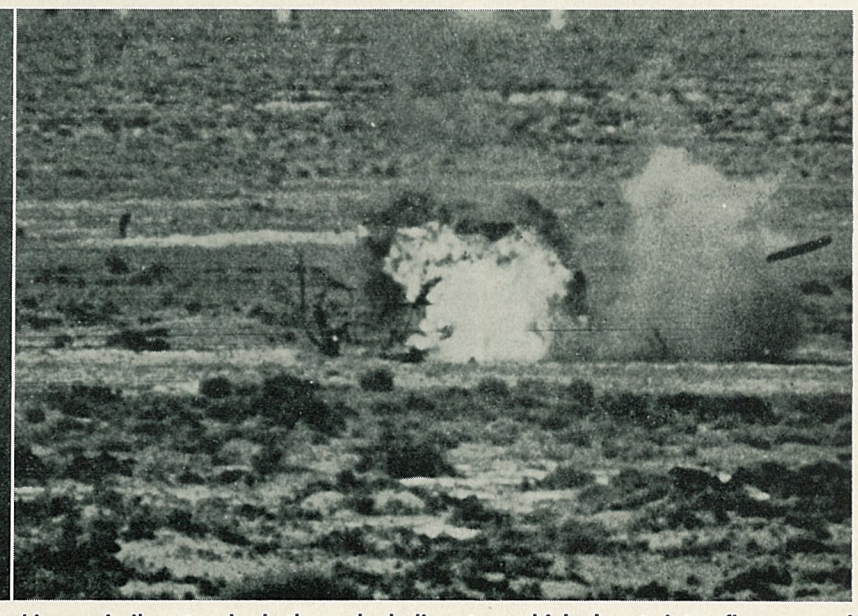
"The new General Dynamics' airplane could be deployed anywhere in the world," Famme said. "It has a ferry range of 2,600 nautical miles which would allow it to fly from California to Hawaii — the longest overwater leg it would have to make for overseas deployment."

The Model 48 is constructed so that it can be maintained easily in hard-to-reach forward areas. For example, an engine can be removed in 15 minutes by just two men—using ropes about the engine mounts if a mechanical hoist is not available. The airframe is built of conventional metal components. Bonding techniques used to fasten wing skins and ribs reduced fabrication time and cost, and provide homogenous surface for the lightweight structures.

Fiber glass is used for the nose and aft fuselage fairing and for the wing tips. Many components —landing gear, engine power sections, self-sealing fuel cells, wing flaps, vertical tails, rudders and tabs — are interchangeable both left and right. This not only reduces field logistics problems, but reduces initial airplane cost.

Redeye Missiles Shoot Down Helicopter and Target Drone





DIRECT HIT — Redeye, world's smallest guided missile, scored direct hit on helicopter in Sept. 24 demonstration at U. S. Naval Ordnance Test Station, China Lake. Heat-seeking missile streaked through helicopter which burst into flames and crashed. Demonstration was witnessed by scores of military and press spectators.

MENU MAKERS—Prophet Co. cafeterias serving General Dynamics will feature 45th anniversary meal Oct. 22 with full dinner for only 45 cents, plus tax. Bill Rickman, left, district supervisor, goes over menu with cafeteria managers, from left, Jack Malone (Convair), Charles Borgatta (Plant 19) and Gil Hutter (Astro). GD/Pomona cafeteria will be included in special.

Special 45c Anniversary Meal Will Mark Prophet Birthday

On Oct. 22 Prophet Co. celebrates its 45th anniversary as a food service organization and Bill Rickman, district manager, has invited all General Dynamics employees to join in the observance.

It should be a memorable occasion, since the price of a special meal to be featured in all Prophet Co. cafeterias will be in keeping with those prevailing when Prophet Co. began operations 45 years ago.

The cost: 45 cents, plus tax!

Diners will enjoy roast turkey and dressing, potatoes, peas, giblet gravy, cranberry sauce, tossed green salad, dinner roll with butter, drink, and a piece of a special anniversary cake.

Taking part in the nation-wide event will be General Dynamics cafeterias at Astronautics (Plants 71 and 19 and Sycamore Canyon), Convair and Pomona. Both first and second shift lunch periods will feature the meal, where applicable.

Five Junior Teams From Astro Shoot In So. Cal. Tourney

Five Astro Rifleers teams took part in the Southern California Junior Rifle League tournament Sept. 26 at Del Monte, and although new shooting conditions were confronted, good showings are expected when final standings are known.

Shooters were Richard Ellis and John Tramposh, Team 1; Terrence and David Farrelly Jr., Team 2; Robert Eaton and Bill Crosthwaite, Team 3; Peggy Bolton and Shelley McGregor, Team 4; Douglas Andrews and Susan McKee, Team 5.

For most of the General Dynamics contestants, the tourney was the first time shooting a 100-yard range, first all-prone match, and first try at 50-meter range.

They were coached by Dave and Laura Farrelly, Ivus Ellis, Ed Eaton and Bob Andrews.

This Saturday (Oct. 10), two other Rifleers, Kathey and Kevin Schindler, will compete in a registered NRA meet, the shoot-off of Pacific Beach Summer League. The event will qualify them for NRA classification.

Bob McGregor of GD/Convair is Rifleers leader, with Martin Miller, also Convair, the chief instructor.

Classes Under Way In Boat Handling

General Dynamics employees in the San Diego area still have time to join special classes in small boat handling offered free under the sponsorship of the U. S. Power Squadrons.

Classes are now meeting at 7:30 p.m. on Tuesday at Sweetwater High School (National City) and Wednesday at both Cabrillo School (Pt. Loma) and the U. S. Naval Amphibious Base (Coronado). Information is available by calling 222-1183 or 222-1719.

ROAD RUNNERS CANCEL MEETING

Convair Road Runners have cancelled their Oct. 17 meeting since it conflicts with the dates for the annual Del Mar trailerite rally (Oct. 15-18). The CRA group is making plans to enter its prize-winning mobile road runner unit in the Border District Rally of Travel Trailer Clubs of America. Carl Scholl, club president, is taking on chores of wagonmaster for the local club.

Convair and Astro Salvage Hours Set

GD people in San Diego will have a chance to shop at Convair and Astro salvage yards the four coming Saturdays of this month. Schedule is:

Convair—Oct. 10, 24.

Astro—Oct. 17, 31.

Sales hours are from 8 a.m. until noon at both locations.

GD Men Active In Seminar Plan

General Dynamics activities in San Diego will be included on the agenda of a West Coast Research Seminar to be sponsored by Office of Naval Research, Oct. 19-30.

More than 100 Navy, Air Force and Army Reserve officers in military and civilian research fields from throughout the nation will attend the event, which is hosted by Naval Research Reserve Company 11-5 in San Diego.

Prominent in seminar planning are R. D. Tuttle, Astro Dept. 834 (Cdr., USNR), who serves as general chairman; R. D. Bradshaw, Dept. 529 (LCdr.), deputy chairman; A. J. Owens, Dept. 590 (LCdr.), Astro session chairman; Arthur Hunt, Dept. 952 (Lt.), assistant to the deputy chairman.

On Oct. 20 a full day's program will center on GD/Astro and presentations by Karel Bossart, technical director; Frank X. Marshall, manager Centaur engineering program office; Dr. Terrence Gooding, senior staff scientist; and Kraft Ehricke, director of advanced studies.

Col. M. K. Andresen, Astro AFPR, and Vice President W. H. Patterson, will welcome seminar participants. The program includes tours of Plant 71 and Sycamore Canyon.

Coordination of the Astro visit on behalf of President J. R. Dempsey and Vice President Mort Rosenbaum, has involved assistance of P. D. Ferrara, chief administrative engineer; D. H. McCoy, and R. T. Blair Jr., manager of community relations, working with the Naval Reserve group.

Included among seminar attendees will be two Astro AFEWI personnel, Capts. R. L. Bulmer and D. F. Chilbert.

On Oct. 27, Nathan L. Wener, GD/Convair Dept. 6 (LCdr., USNR) will serve as chairman of a session including presentations by Convair's Alan C. Conolly, senior hydrodynamics engineer; K. G. Hart, chief of dynamics; D. B. Dewey Jr., hydrodynamics engineer; and R. F. Devereux, oceanography project manager.

A session Oct. 29 will deal with nuclear science, as the seminar group visits General Atomic for a program chaired by Charles B. Wagner (Cdr., USNR) and tours that division's facilities.

HUNDRED ATTEND BUSINESS CLASSES

Over 100 General Dynamics people, intent on increasing their knowledge of modern business methods, filled six courses offered for the first time in-plant under a new Business Systems Management program.

The program, which leads to a professional designation, has been set up by GD/Astronautics and GD/Convair educational services in cooperation with University of California Extension (**GD/NEWS**, Sept. 9, 1964).

Each of the six classes in new business technology has an enrollment of between 15 and 20. Registration closed Oct. 2.

Classes at Astro's Plant 71 are: Business Data Processing with Unit Record Systems, John Spillman, instructor; two classes in Data Processing and Computer Programming, both taught by Gerald Myers; Electronic Data Processing Economics and Feasibility Studies, and Systems and Procedures, Charles Twohey, instructor of both.

Mike Dascenzo is instructing Electronic Data Processing Economics and Feasibility Studies at Convair, Plant 1.

Centaur Project Takes Reins Of Astronautics Test Sites

Management responsibility for the operation of GD/Astronautics' two oldest test sites — Point Loma and Sycamore Canyon — shifted this week to the Centaur project organization.

President J. R. Dempsey announced the change.

At present, about 98 per cent of the test loads being carried out at the two sites are in direct support of Centaur development or other programs Astronautics is performing for the National Aeronautics and Space Administration (NASA).

Under the new arrangement, NASA's resident office at Astro, headed by Ronald Rovenger, will exercise all required governmental control over the site operations.

"This shift in management responsibility has been worked out in close coordination with the Astronautics Air Force Plant Representative," Rovenger said. "It is a mutual effort affording maximum utilization of existing facilities at the lowest possible cost."

Rovenger added both sites will remain available at all times to carry out direct test support of all Astronautics defense and space efforts. The Air Force will continue to support test operations as in the past.

J. S. Harrison, Centaur manager of test operations, will be directly responsible for both sites. Chief of NASA resident office operations is Lt. Col. Joe E. Heatherly.

Both Col. Heatherly and Harrison approved the administrative shift.

"We will be better prepared to respond quickly to rapidly changing situations," Col. Heatherly said. "And we can now switch existing facilities and personnel about with minimum adverse results," Harrison added.

Astro currently has about 200 employees on hand at each of the two sites, although totals may fluctuate with tests in progress. Fred Wallace Jr. heads the Point Loma work force, while H. M. Brown is test conductor at Sycamore Canyon.

Sycamore Canyon's Stand 4 is presently the only point where "hot" Centaur engine runs are made. A "battleship" Centaur tank there is utilized for a wide variety of development and verification systems tests, etc.

Extensive test equipment at Point Loma is utilized for many types of structural, cryogenic, environment, separation and component system tests.

Unaffected by the management responsibility shifts is the General Dynamics Test Site adjacent to Sycamore Canyon.

Keglers Signing For Tourney

General Dynamics keglers have until the end of this month to sign for the annual Industrial Recreation Council bowling tournament, set for Nov. 7-8 at Pacific Recreation.

Mike Brooks, co-commissioner of CRA bowling and chairman of the IRC tourney, said that all GD people in San Diego are eligible to enter. Deadline is Oct. 30.

Five-man teams will compete in three divisions: men, women, and mixed. Individual trophies will go to high game and high series in each division. Winning teams also receive trophies. An awards dinner will honor winners the week following the tournament.

Last year's book averages will be used for handicaps, with 850 set for maximum team average. Entry fee is $16 per team, to be paid at time of entry.

Entry forms are available at Astro, Convair, GD/E employee services and may be turned into respective employee services outlets or to Brooks. Brooks may be reached at his home phone, 469-8793, for information.

STANLEY ROGERS FILLS TWO SOCIETY POSTS

Stanley Rogers, GD/Astro Dept. 590-0, has been named publications chairman of American Federation of Information Processing Societies, sponsor of annual spring and fall "Joint Computer Conferences." Rogers additionally serves as national secretary of Simulation Councils, and is publisher of this body's monthly "Simulation."

ON THE JOB — Pictured with President J. R. Dempsey are September graduates of Astro industrial management training program, from left, J. B. Butterworth, S. D. Royer, W. M. Cott, R. G. Rosen, K. H. Griesbaum, J. M. Miller, J. T. Lane, C. J. Southgate. All have now received regular assignment to GD/Astro departments.

Eight Complete Their Training In Industrial Management

Certificates of completion were presented by President J. R. Dempsey last month to the third group of young men to complete Astronautics' industrial management training program.

Graduates are J. B. Butterworth, W. M. Cott, K. H. Griesbaum, J. T. Lane, J. M. Miller, R. G. Rosen, S. D. Royer, C. J. Southgate.

After completing a two-year program in which all were assigned for periods of three to six months to various division administrative departments, all have now received full-time work assignments.

Butterworth is with division systems, Cott with SLV contracts, Griesbaum with Centaur contracts, Lane with controller's function, Miller and Southgate with configuration management, Rosen with industrial relations, Royer with contracts.

In the course of their training, program participants performed actual tasks in departments to which they were temporarily assigned, according to training outlines prepared by their host department. At the completion of each assignment they were evaluated by the appropriate manager and director.

The program just completed was conducted by management systems. A new group of trainees will participate in the program which is now under sponsorship of industrial relations (**GD/NEWS**, Aug. 12).

Early Entries Urged For NMA Area Golf Tourney Nov. 21-22

Golfers of all three General Dynamics Management Clubs in San Diego have a chance to get preferred spots in the first annual golf tournament held by the NMA San Diego Area Council, if they enter now.

The 18-hole medal play tourney will be Nov. 21 and 22 at Cottonwood Country Club. At least 200 linksmen from the Area Council's seven management clubs will compete. All present and past members of Astronautics, Convair, and GD/E groups are eligible.

Starting times and days will be assigned in the order entries are received up to the Nov. 6 deadline. Foursomes, threesomes, or twosomes are asked to enter on one entry blank, as printed below, and send entries to the division representative handling golf entries: Astro—D. K. Stites, Plant 71, ext. 2340, Zone 644-00; Convair — Terry Kell, Plant 1, ext. 605, Zone 423-00; GD/E—Ernie Paul, Stromberg-Carlson, Hancock St., ext. 2193.

Fee is $7.50 per person, which includes $2.50 entry charge and $5 greens fees.

ENTRY FORM

Preferred day and starting time: Saturday..... or Sunday.....

Participants' Names	Address	Phone	Hdcp.	Company
1.				
2.				
3.				
4.				

Stuart Named To Quality Post

Appointment of H. J. Stuart as director of quality control at GD/Pomona effective Oct. 5 was announced by President C. F. Horne.

H. J. Stuart

Stuart transferred to Pomona from SD/Electronics-San Diego where he held the position of manager of reliability and quality control.

In his new post he succeeds A. C. McMaster who is now director of Redeye program management.

Before joining GD/Convair engineering in 1957 he had been manager of Engineering Services Division of Telecomputing Corp. for three years, engaged in development of data gathering and data handling techniques for missile and aircraft tests conducted at Holloman-White Sands Proving Grounds test range.

During five years preceding 1954 he was supervisory engineer at Holloman Air Development Center with responsibilities for instrumentation and operation of various test range studies.

Stuart was electronics group engineer with GD/Convair's electronics section before transferring to GD/Electronics division early in 1961.

Disability Claims Up to Individuals

General Dynamics people are reminded that they have sole responsibility for filing state disability claims when they are off the job because of illness or injury.

All GD people working in the state of California must file state claims for weekly disability payments directly with the California State Disability Office under a ruling in effect the last two years.

Employee services offices at all divisions report that they are still receiving inquiries from employees on the procedure of filing claims. However, employee services outlets issue the forms only, but no longer handle any state disability claims. Filing must be done by employees individually through the state office as soon as possible after they start sick leave.

Group insurance claims should be made as usual through employee services.

Club Plans Raffle Of Memorial Coins

A 1923S Monroe Doctrine centennial, Iowa centennial, and a Stone Mountain memorial will be up for grabs at the CRA Coin Club raffle at the Oct. 15 meeting.

Raffle tickets will be available at the meeting only. An auction will be conducted and refreshments served. Time is 7:30 p.m. in the Convair main cafeteria, Pacific Hwy.

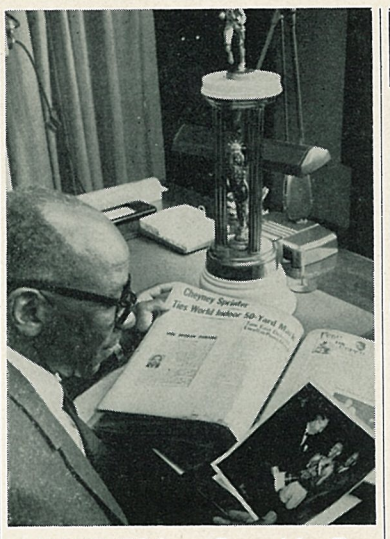
CRA coineers will participate in the annual Coin-a-Rama sponsored by all San Diego coin clubs at El Cortez Convention Center, Oct. 16-18.

LINKSMEN SLATE APPLE VALLEY TREK

At least 60 GD/E and Stromberg-Carlson people will trek to Apple Valley this weekend for their seventh annual golf outing. They will headquarter at Apple Valley Inn and attack the desert course Saturday and Sunday. The trip is coordinated each year by Ernie Paul, president of the GD/E Men's Golf Club.

COTTONWOOD HOSTS FEMININE GOLFERS

General Dynamics feminine golfers will vie in a tourney this coming Saturday (Oct. 10) when the GD Women's Golf Club holds its monthly match at Cottonwood. Players have a choice of two flights, one for nine holes and the other for 18.



MEMENTOS — Convair's Tom East reviews clippings and photos of over 20 years ago when his name was frequent in headlines as one of country's fastest sprinters.

Speedy

Engineer Once A Top Sprinter

As the world prepares for the 1964 Olympic Games, memories of a Convair engineer, who flashed down the cinder tracks to stardom some 20 years ago and missed being an Olympics contestant only because the war blotted out the 1944 Games, turn back to the days when, as a lithe young sprinter of 23, he outran the best of his era.

Thomas East, design engineer at Convair, set the first world indoor 100-yd. dash record; equalled the world indoor record for the 50-yd. dash; and set an unofficial world time for the outdoor 100-yd.

His speedy legs first drew attention during high school when he broke all state records, running under the banner of Overbrook High, Philadelphia, Pa.

During his junior year at Cheyney (Pa.) State Teachers College, East ran the 100-yd. in 9.6 to qualify for AAU competition.

"My biggest thrill," East remembered, "was winning the indoor 50-yd. dash at Penn Athletic Club's meet in the Philadelphia Convention Hall."

His time of 5.2 seconds equalled the world record of that time, set 25 years before. Today's record is just a tenth of a second less.

His best time in the outdoor 100-yd. was 9.3, an unofficial world record then. Today's record is 9.1.

East was probably one of the slightest-built runners in the top rating — weighing only 135-lbs. He competed in over 200 meets, and over the years has disposed of rooms full of medals and trophies. Besides the 50-, 60-, and 100-yd., he was a man to watch in the 220-yd., quarter mile, relays and cross-country.

East kept in training after graduation, hoping for a chance to qualify for the Olympics. But World War II dashed those dreams.

He came to Convair in 1957 and has worked on design of various parts of the 880/990, and Little Joe II.

Program to Describe Mayan Civilization

Mayan civilization will be traced in slides and narrative description at CRA Rockhounds meeting tomorrow night (Oct. 8), 7:30 p.m., Gillespie Field Clubhouse.

Herman Derksen, amateur archaeologist, will outline the development of the Mayan culture from 10,000 B.C. to present-day vestiges and illustrate with slides he has taken during the last 14 years on expeditions to southern Mexico and Guatemala.

Astro Rockhounds, San Diego Lapidary Society, El Cajon rockhounds group, and the La Mesa Tourmaline Society have been issued special invitations to attend the program, said Commissioner Dan Whorton. All other interested persons are welcome.

CRA Calendar

(Convair Recreation Association has some 30 activities in operation for Convair, GD/E, Stromberg-Carlson people. For information call CRA Headquarters, ext. 1245).

★

AEROMODELERS — Flying sessions Saturday and Sunday mornings, 8 a.m. to 1 p.m., Clairemont Flying Site.

CAMERA CLUB — Meeting Oct. 18, 7:30 p.m., Photo Arts Bldg., Balboa Park.

COIN CLUB — Meeting Oct. 15, 7:30 p.m., Convair main cafeteria, Pacific Hwy.

GARDEN CLUB — Meeting tonight (Oct. 7) 7:30 p.m., Floral Assoc. Bldg., Balboa Park.

GOLF — Final rounds of CRA Plant Championship Saturdays (Oct. 24, 31), Bonita Valley Country Club.

GUN CLUB—Registered skeet shoot Oct. 18; Troy shoot, Oct. 25, Gillespie Field Range.

ICE SKATING — Thursday ice skating sessions for GD people, Mission Valley Ice Plaza, 6:30-8 p.m.

JUNIOR RIFLEERS—Regular shoot Oct. 17, 8 a.m., CRA range. Meeting Oct. 21, 7 p.m., ARA Clubhouse.

MODEL RAILROAD — Work nights, Fridays, 7:30 p.m., open sessions, Sundays, 1-4:30 p.m., House of Charm, Balboa Park.

MOVIES — Reduced prices for GD people at State Theater, Euclid and El Cajon Blvd. General admission: adults, $1; children, 35c.

PISTOL CLUB — Club shoot Oct. 11, 9:15 a.m., San Diego Police Pistol Range, Federal Blvd. and Home Ave.

RADIO CLUB—Next meeting Oct. 15, 8 p.m., Harbor Drive club headquarters.

ROAD RUNNERS — Del Mar Rally Oct. 15-18. No October business meeting.

ROCKHOUNDS — Meeting Oct. 8, 7:30 p.m., Gillespie Field Clubhouse.

SPORTS CAR CLUB—Installation and 10th anniversary dinner-dance Oct. 17, Gillespie Field Clubhouse. Business meeting tonight (Oct. 7), Convair executive dining room, 7:30 p.m.

WATER SKI CLUB — Skiing weekends on Mission Bay on phone-call basis. Call Gene Sevigny, ext. 1778, Plant 1.

Shooters Falter In Try For Cash

CRA Gun Club's pot still swings just out of reach of trapshooters with none coming close in the Sept. 27 Troy shoot.

Bill Crafton and Don Jones topped the field with 45s — 25 straight in the 16-yd. and 20 in handicap — but took home only $4.50 apiece for their trouble.

The cash stake is now $183.75 for perfect combined score and $83.75 for 25 straight in handicap at the Oct. 25 shoot.

Another Gun Club open trapshoot drew 41 entries in the ATA registered match the night of Sept. 23 with L. P. Johnson of Chula Vista topping Class A with 47. A. T. Higginbotham of National City and Art Berry of Lemon Grove tied with 48 for first in Class B. Lewis Steiner of Lemon Grove was first in Class C with a 47.

Joe Butera of Convair won the handicap event with 46. Richard Hall of San Diego and Johnson tied for second with 44s.

Small Field Vies For Golfing Crown

A field of 32 Convair linksmen teed off last Saturday, Oct. 3, in the opening round of CRA's annual plant championship over Bonita Valley course, reported Golf Commissioner Ken Wulfemeyer. Turnout was smaller than expected, said Wulfemeyer, with less than half of the reserved spots filled. Second and third rounds will be played the last two Saturdays of the month, Oct. 24 and 31.

Sports & Recreation

HOT BOWLERS—Fred Green (left) and Ralph McConnell topped Convair Fire Dept. bowlers in close summer league competition, winning CRA trophies with half-game lead.

Pre-War Team Victors In Slow Pitch Play-off

Pre-War Personnel hold the "slow pitch" softball plant championship title at Convair after sweeping the first two games of the best two-of-three play-off with GD/Electronics Operations late last month.

Pre-War boys were second-round winners and GD/E Ops had broken the tie for first-half title in a sudden death play-off earlier in the month.

But, Pre-War made it a decisive victory in the title play-off, defeating GD/E Ops 6-1 in the first game Sept. 17 and going on the next week to clinch the championship without contest, 10-1.

In the Sept. 17 game Pre-War collected 11 hits to GD/E Operations' 6. Dean Froggette of Pre-War scored three hits in three trips at bat, including a triple. John Evans and Mel Thurman both had two in three times up.

GD/E Ops' Mike Peterson scored the only run for the losing side on two errors and a hit by Gil McCoy.

On Sept. 24 six Pre-War players tallied two hits apiece and two other men singled to chalk up 14 hits.

An awards banquet will honor Pre-War Personnel tomorrow night (Oct. 8) in the Convair executive dining room. All team members will receive CRA individual trophies.

Batting averages of the champion team were:

Name	Ave.
John Evans	.462
Ken Wulfemeyer	.458
Fred Aguero	.450
Dean Froggette	.448
Ray Lucero	.433
Don Sanchez	.395
Tony Berardini	.354
Mel Thurman	.343
Gil Crosthwaite	.316
Steve Rivas	.306
Bernie Armas	.256
Jack Swank	.256
Frank Cruz	.208

Four-Gauge Skeet Slated

First four-gauge open skeet shoot sponsored by the CRA Gun Club Sept. 20 proved such a success that the next three, held monthly, will be of the same type. Next will be Oct. 18 at Gillespie Field Range.

Sixty-three entries competed for the National Skeet Shooting Association jewelry and lighters going as prizes at the Sunday event.

Good marksmanship and close scores highlighted the match with Bill Hicks of San Diego and Robert Houston of La Mesa both totaling 191 out of 200 in all gauge classification to tie for high overall spot. Houston won the shoot-off with 23 out of 25.

In 12-gauge division Hicks was first in Class AA with 49 out of 50. Alan Davis of San Diego shot a perfect 50 in Class A. Robert Beckett of San Diego was first in Class B with 49. Houston won Class C with 48. Class D winner was Stan Eggers of Coronado, 45, and Lee Johnson of San Diego took Class E, 48.

Winners of 20-gauge division were: Class AA, Hicks, 50; Class A, Davis, 48; Class B, Beckett, 45; Class C, Houston, 50; Class D, Eggers, 44.

28-gauge: Class AA, Hicks, 49; Class A, Robert Dodge of Vista, 45; Class B, Omer Reed, El Cajon, 44; Class C, Walter Palmer, National City, 41.

.410-gauge: Class AA, Hicks won the shoot-off after tieing with Reed at 43; Class A, Dodge won the shoot-off to break a tie with Davis, 42; Class B, Houston, 45; Class C, Wayne Olson, San Diego, 42.

GD/E GOLFERS SET MATCH FOR OCT. 18

GD/E Men's Golf Club has set its next tourney for Sunday, Oct. 18, at Cottonwood Country Club with first tee-off time at 9 a.m., reminds Ernie Paul, club president.

Keg Battle Won By Half Game

A half-game spelled the difference between first and second places in the Convair Fire Department's summer keg battle as Team No. 5 edged by Team No. 8 to win 48-47½.

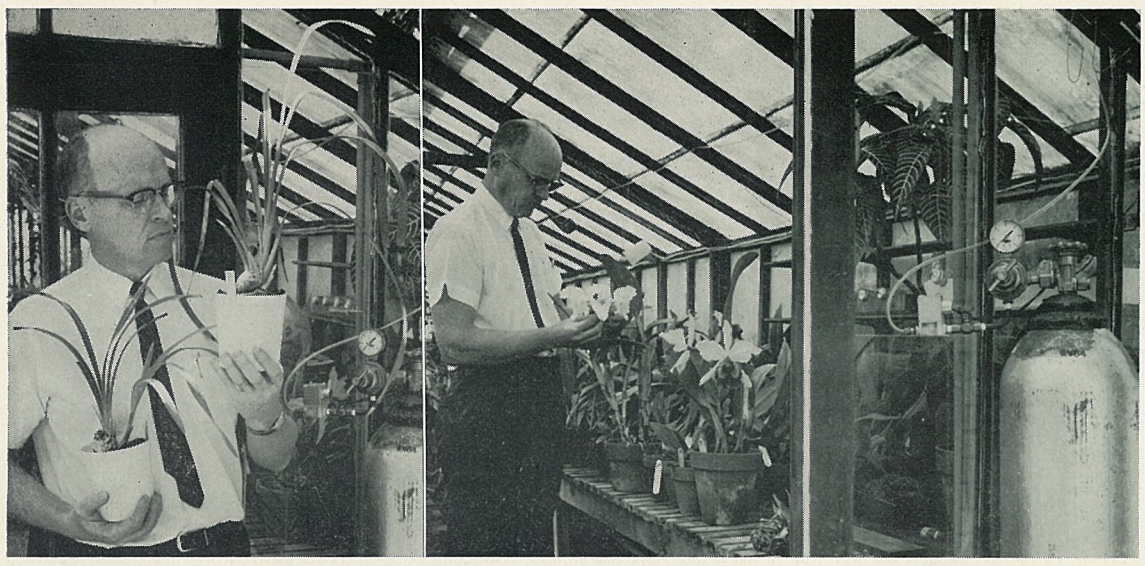
Fred Green and Ralph McConnell, winning No. 5 duo, took home the first-place CRA trophies.

Runner-up team members in the 22-week bowling contest were Hugh Rae and Duane Lange. Not far behind with 46½ wins was Team No. 1 — Pete Houtkooper and Cecil Parker.

No. 8 led the season's honor roll with high team series, 1,146. Top No. 5 had high team game, 445. Rae held high individual series score, 604, and Houtkooper rolled the high individual game, 258. Lange was high handicap series scorer with 683 and Charles Hamel had high handicap game, 267.

Ralph Halstead was most improved bowler, boosting his average by 12 pins.

Plans are under way for the firemen's winter league which will bowl at Frontier Lanes. Action is scheduled to start early this month.



SPEED-UP—C. L. Hartshorn of Astronautics, orchid grower in his leisure time, is shown in his greenhouse equipped with Liquid Carbonic CO_2 system which speeds growth spectacularly. In photo at left Hartshorn is looking directly at Cymbidium that was grown under these conditions. In other hand he holds Cymbidium that was planted four months earlier, under normal conditions. CO_2 is piped into greenhouse in plastic tubing and enters atmosphere through tiny holes in plastic.

Phenomenal!

'Instant Orchids'—Well, Almost—Produced With CO2 System

A General Dynamics man, C. L. "Larry" Hartshorn, chief plant engineer at Astronautics division, has one of the first greenhouse installations of Liquid Carbonic's CO_2 system on the West Coast.

An avid "after hours" orchid grower, Hartshorn equipped one of three greenhouses he maintains at his Escondido, Calif., home with CO_2 last June.

He describes the results as "phenomenal!"

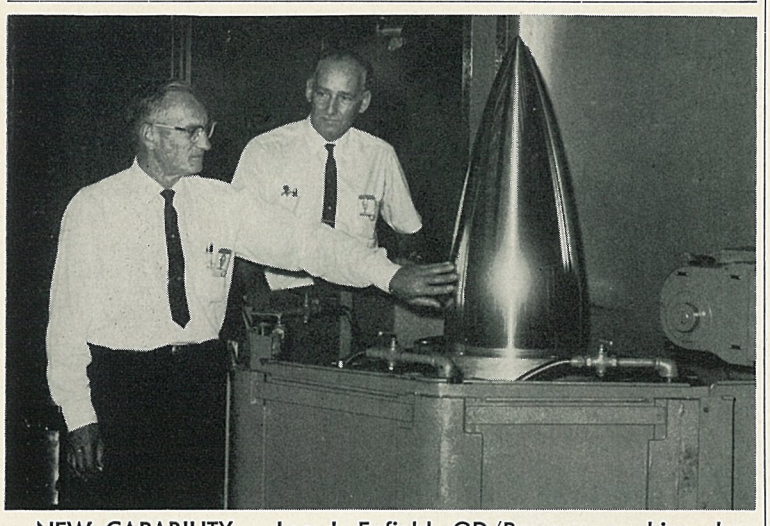
Hartshorn uses the tube distribution system in his 9 by 30-foot greenhouse, where a single CO_2 cylinder feeds in gas at 0.25 cu. ft. per hour from 7 a.m. to 6 p.m. daily. Concentration is maintained at about 500 ppm, and Hartshorn said a gas cylinder normally lasts about a month.

"While orchids are normally extremely slow-growing," he explained, "since I put in the CO_2 system, growth has been obvious."

To demonstrate, he displayed some 100 plants — two-inch seedlings in June — which have already shown considerable foliage and root growth. A random sample of five larger plants which had five-inch leaves when the CO_2 system was installed now have new leaves 8 to 8½-inches long.

Other orchid plants, in two-inch pots since 1962, have required repotting since exposure to the CO_2 concentration. Hartshorn explained that the usual procedure called for moving them into pots one size larger, but with several of the plants in question, growth was so extensive it was necessary to "skip" sizes in repotting.

The CO_2 system has seen widespread acceptance from commercial growers throughout the Mid-West, he said, and on the West Coast is being used for orchids by large commercial growers in both Los Angeles and Goleta, Calif., and by growers in Solana Beach.



NEW CAPABILITY — Leo J. Enfield, GD/Pomona machine shop general foreman, and Harvey Goodwin, tool engineering supervisor, examine "just completed" master radome pattern while still on a tape controlled Bullard four-axis vertical lathe. Pattern demonstrates contouring capabilities of Bullard, one of the newer machines assigned to numerical control section at GD/Pomona.

Lewis Emmerich, Now of GD/Electronics, Named Director of Ship Conversion Task

Representatives of the U. S. Navy, National Aeronautics and Space Administration and the U. S. Air Force met in Rochester, N. Y., last month with General Dynamics representatives for preliminary planning following award of a $65 million "Range Instrumentation Ships" contract (**GD/NEWS**, Sept. 23, 1964).

Work involves conversion of three Navy tankers to become sea-going tracking ships for the Apollo program.

Conferees were welcomed by R. A. Wilson, president of Electronics division. They included Capt. A. F. Hancock, project officer, Bureau of Ships; Capt. H. A. Jackson, supervisor of ships, Groton, Conn.; Capt. H. H. Hickman, Inspector of Navy Material, Buffalo; Robert McCaffery of NASA; Lt. Col. W. T. Martin of USAF; Robert Laney, Electric Boat, manager of the Quincy Yard where the ships will be converted.

Lew Emmerich

Lewis Emmerich, formerly of Astronautics division and now Electronics division R.I.S. program director, described the operating organization for the project to insure satisfactory liaison between the General Dynamics divisions and the governmental agencies involved.

Emmerich, whose appointment was announced recently by S. L. Ackerman, GD/E vice president, will make his headquarters at Quincy.

'Breakthrough' For Gardeners

A major "breakthrough" in greenhouse gardening has been achieved by Liquid Carbonic division with a unique system for positive control of the atmospheric concentration of carbon dioxide.

Broadly speaking, carbon dioxide (CO_2) is to plants what oxygen is to animals: through photosynthesis, plants combine CO_2 and water plus the energy of sunlight into the complex compounds needed for growth.

The atmosphere normally contains only a tiny quantity of CO_2 — about 250-330 parts per million. If this proportion is reduced to about 220 ppm, plant growth slows. When the level falls to 150 ppm, some plants simply stop growing.

In greenhouses — essential for year-around production in many parts of the country, and used to provide specialized environments for certain plants even in more temperate climates — CO_2 concentration tends to drop as plants absorb the gas naturally present in the atmosphere.

Liquid Carbonic has devised a proven, low-cost means of replacing this CO_2 depletion, and in the same manner, building the concentration to 500-550 ppm to accelerate growth.

One method calls for suspending lightweight plastic tubing along the greenhouse roof. This is connected, via a flowmeter and timer, to a CO_2 supply — either LC's "Liquiflow" storage vessel or dry ice converter. Gaseous CO_2 feeds into the atmosphere at a controlled rate through tiny holes punched in the tubing.

An alternate technique involves releasing CO_2 directly below existing overhead fan units, which mix it evenly into the air throughout the greenhouse.

Plants grown with a controlled CO_2 concentration (up to 550 ppm) show increased yield, quality and market value.

Bibb lettuce, for example, showed a 40 per cent crop increase with CO_2; tomato crops shot up 29 per cent. Carnation yields increased over 30 per cent, and, even more significantly, flowered up to two weeks earlier. Roses improved markedly in blossom quality, number and yield (39.7 per cent average), plants produced more flowers with 20 and 30-inch stems.

Besides the uniform growth which results from controlled CO_2 concentration, it lets greenhouse growers in colder climates trim winter heating costs, since ventilation from cold, outside air, is no longer needed to replace CO_2 absorbed by the growing plants.

MILLING ELECTED BY INSTITUTE

John D. Milling, GD/Convair controller, has been elected to membership in the Financial Executives Institute, an organization of top corporate financial management people in the United States, Canada, Puerto Rico. Milling will be affiliated with the Los Angeles Chapter.

Atomic Named In Power Plan

The U. S. Atomic Energy Commission has accepted, as a basis for negotiations, a proposal to build an advanced high temperature gas-cooled reactor (HTGR) nuclear power station of 260,000 kilowatts electrical generating capacity on the system of the Rochester, N. Y., Gas and Electric Corp.

The plant is expected to be constructed on the south shore of Lake Ontario about 19 miles east of Rochester.

The AEC announced that a memorandum of understanding for a cooperative government-industry arrangement will be negotiated. General Atomic which developed the HTGR nuclear power system, will furnish the entire power system and its nuclear fuel as the prime contractor.

The AEC said the memorandum of understanding will serve as a basis for seeking Congressional authorization and funding.

DIVISIONS SEND REPS TO FLORIDA

Representatives of two General Dynamics divisions were on hand at Orlando, Fla., Sept. 29 through Oct. 2 to take part in the Seventh Annual Air Force Institute of Technology (AFIT) "Education With Industry" Management Symposium.

Astronautics' E. W. Thurston Jr., education services coordinator, took part along with Capts. Ronald Bulmer and Dominic Chilbert, now assigned to Astro for AFIT training.

From GD/Fort Worth, J. H. Payne, executive development administrator, attended, along with Majs. James Hicks Jr. and Robert Pait, and Capt. Lester Raymer, also AFIT trainees.

Conferees hailed from 50 firms and included 111 AFIT officer students assigned to these firms for training. Pan American World Airways, Guided Missiles Range Division, was host company.

Keynote address was delivered by Maj. Gen. Ben I. Funk, commander of the Space Systems Division, AFSC.

S-C Will Take Part In Greek Project

Stromberg-Carlson has been awarded a U. S. Air Force contract, which under the U. S. Military Aid Program will involve supplying microwave and multiplex equipment for use in Greece as part of "Project Light Up."

Light Up comprises communication circuits which will interconnect various military operating bases with an existing long-line system.

Dynamics Studying Computer Center

A General Dynamics study group to analyze economic and operating factors involved in establishing a western regional computer center to serve West Coast divisions was organized recently.

Members of the group are R. E. Bennis and L. M. Smith of Corporate Office, Jack Mason of GD/Pomona, and GD/Convair's G. O. Withem. John H. Johnson, GD/Astro director of management systems, serves as chairman.

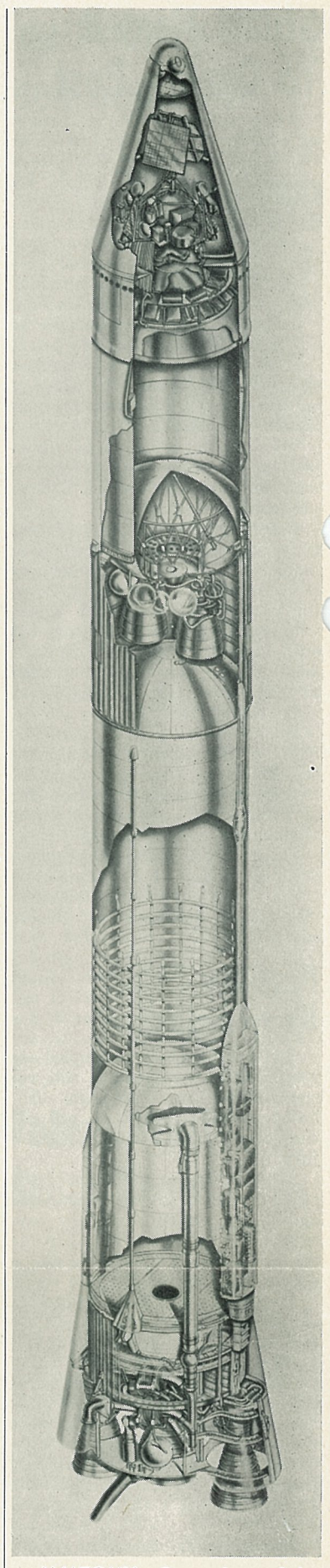
THIN FILM STUDY FUNDS AWARDED

Electronics division has received a $65,000 contract from the Division of the Air Force Avionics Laboratory, Air Force Systems Command, U.S.A.F., to continue work in thin film measurement techniques.

Studies began under company sponsorship in 1958.

ELECTRONICS WINS ARMY CONTRACT

The Fort Monmouth Procurement Division of the U. S. Army Electronics Command has awarded Electronics division a $75,000 contract for a study of electro-acoustic coincident pulse storage techniques.



ANATOMY—Rare view of Atlas-Centaur-Surveyor lunar-probing combination is provided in this cut-away drawing. Note how Centaur nestles snuggly on Atlas with Surveyor riding above, nestled within nose fairing that is jettisoned in flight. Insulation panels around Centaur are also jettisoned once they have served their protective role. This combination will be used to explore moon's surface during 1965 as prelude to manned lunar explorations later.

Quotes...

A good General not only sees the way to victory; he also knows when victory is impossible.

—Polybius

* * *

No amount of pay ever made a good soldier, a good teacher, a good artist, or a good workman.

—John Ruskin

* * *

Always dream and shoot higher than you know you can do. Don't bother just to be better than your contemporaries or predecessors. Try to be better than yourself.

—William Faulkner

* * *

If a man has talent and cannot use it, he has failed. If he has talent and uses only half of it, he has partly failed. If he has a talent and learns somehow to use the whole of it, he has succeeded, and won satisfaction and triumph few men ever know.

—Thomas Wolfe

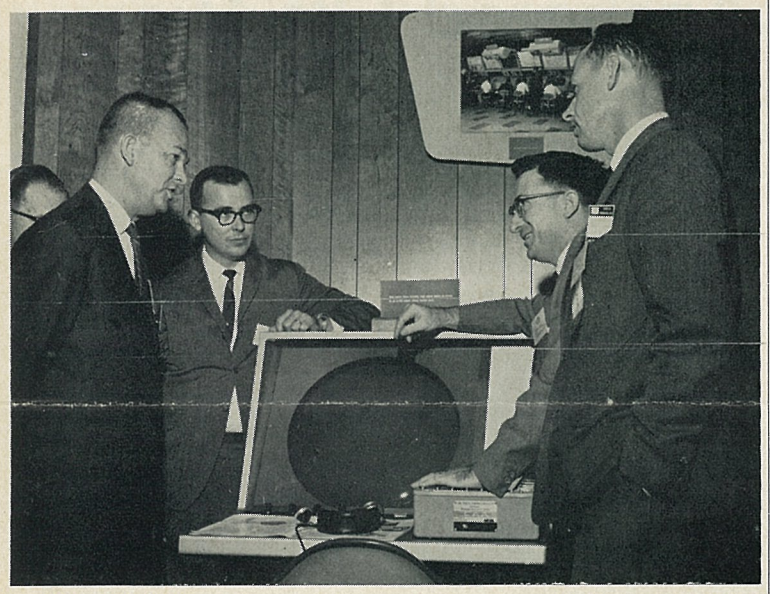
GD

SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

Vol. 17, No. 22 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, October 21, 1964

BRITISH VISITORS — Officials from British Air Ministry at San Diego facility of GD/Electronics recently for briefing on GD/E products are D. G. Reid, assistant director Airborne Electronic Branch (second from left), and P. Cheek, deputy director Electronic Production Branch (across table). Corporate and GD/E men at conference are (far left) John Sorsby of London office; D. C. Prim, GD/E manager at SD (center); Daniel Semels, GD manager of market development-international (standing); and A. A. Farrar, GD/E vice president-marketing from Rochester (far right).



ON DISPLAY — Grouped around Stromberg-Carlson S-C 1090 at FAA exhibit, Washington, D.C., are (from left) Carl Halonen, S-C engineer; A. H. Wisdom, manager of engineering at SD; H. J. Buck, S-C customer engineer; R. H. Haskin, FAA project engineer; and J. H. Redman, S-C manager of government requirements at SD.

Edith Summerfield Fire Queen; Sheet Metal Wins Competition

Edith Summerfield (Dept. 92) won the "Miss Torch" crown for 1964 by a narrow margin in Convair fire department's queen contest which brought a heavy vote right up to closing of the polls late Oct. 9.

Dept. 101, sheet metal, headed all departments in fire safety competition.

Trophies went for both honors following the close of the fire department's double-barreled event, held each year to point up importance of fire precautions.

Edith's total vote of 1,286 was only some 50 ahead of runner-up Marilyn Sorcinelli. Crystal Richards was a close third with 1,198.

The same tight run-off was

(Continued on Page 2)

G. K. Phares' ES Saves $9,875

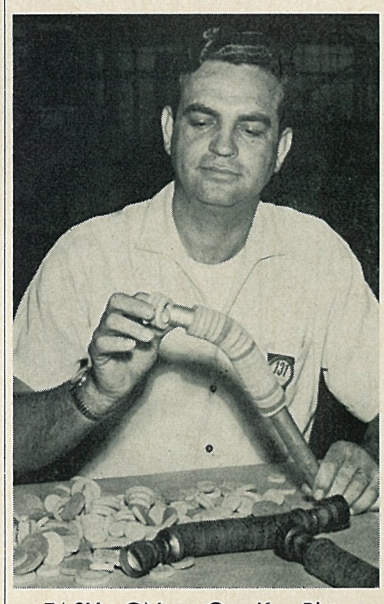
One of the largest Employee Suggestion awards at GD/Convair in several years went early this month to G. K. Phares of Dept. 131 when he received first payment on a nearly $1,000 ES award.

Phares' well-thought-out method of installing fiber glass insulating washers on ducts for the F-106 air conditioning modification will save the company $9,875.81.

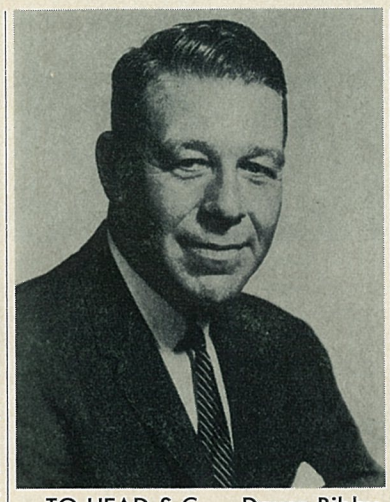
Instead of the former method of welding up the complete hot air assembly, including the retainer flanges at the end of the ducts, and cutting the rings for slipping over the duct assembly, Phares suggested leaving the nut and retainer off until after the rings had been slipped over the end and compressed to the tight firmness necessary.

Time needed for installing rings is reduced by 75 per cent. Quality is much improved by leaving the rings whole. No compression tools are necessary to compress and hold the insulation rings during installation. Finished appearance is better and there is less risk of scrappage.

Phares, who has been with Convair 15 years, is a leadman on welding and precision assembly. This is the first big pay-off he has had on an Employee Suggestion, although he was a steady submitter of Cost Improvement Proposals during the 10 years he served as a Dept. 131 assistant foreman.



EASY ON — G. K. Phares, GD/ Convair Dept. 131 leadman, is richer by $493.79—half of total ES award of $987.58—for ring installation.



TO HEAD S-C — Dause Bibby, Stromberg-Carlson president.

Roger Lewis Names Bibby To Head S-C

Dause L. Bibby has been named president of Stromberg-Carlson division of General Dynamics, Roger Lewis, Corporation president, announced this week.

Bibby was formerly a vice president of Sperry Rand Corp. He succeeds John H. Voss, 62, who has requested early retirement from active operations.

Stromberg-Carlson produces a wide range of communication equipment. For many years it has been the country's largest supplier of telephone systems and instruments for the nation's 3,000 independent telephone companies. It also produces advanced printout and display equipment for data processing, sound and communication equipment for schools and industry, and complete communication system management.

Bibby has wide experience in the electronics industry. He began his career with International Business Machine Co. in 1934 as a salesman. He became a vice president of IBM in 1949. In 1956 he joined Daystrom, Inc. as executive vice president and a director. In 1959 he joined Sperry Rand as executive vice president of its Remington-Rand division and was named president of that division in 1960.

Born June 7, 1911, in Cisco, Texas, Bibby received a degree in business administration from the University of Texas in 1933. From 1944 through 1946 he served in the U. S. Navy.

Voss, widely known in the telephone field and in charge of General Dynamics telephone-producing operations for the past 10 years, will continue as a consultant.

'Bravo' Buoy Awaits Storms Off Fla. Coast

Convair's long range telemetering buoy, Bravo, now is firmly anchored off the Florida coast all set to ride out the heavy winter weather.

All systems functioned perfectly in the first two weeks on location, reports Robert Devereux, Convair project manager.

The buoy, first Convair prototype, was moored a mile and a half off Hollywood Beach, 15 miles north of Miami, on Oct. 1. Original mooring date of Sept. 24 was delayed a few days by minor problems with the anti-collision light and then by a couple of days of bad weather.

Marine Acoustical Services of Miami had the subcontract for mooring operations.

First reports from Convair's on-site team, Ralph Kosic and Dennis Hyland who drew the first month's tour of duty for monitoring the buoy, all telemetry and interrogation operations were routine and satisfactory. They have set up headquarters in a beachfront apartment with the buoy in sight. The Convair mobile command receiving station is parked next door on a vacant lot provided, free of charge, by its owner, a General Dynamics stockholder.

The large 40-ft. diameter buoy with its flashing light is clearly visible from shore and has aroused a great deal of interest among Hollywood Beach residents. Police say they have received queries about the "Russian trawler" offshore.

Besides their duties of acquiring data from the buoy, the Convair duo visits the buoy every few days in the 13-ft. Boston

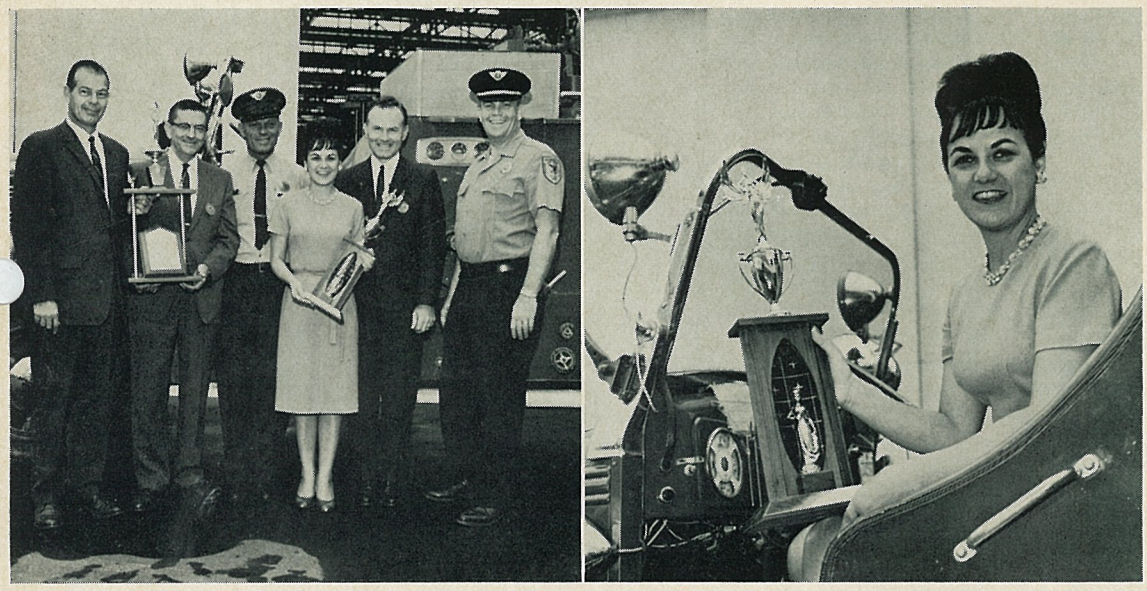
(Continued on Page 2)

Shannon to Direct COIN Flight Program

E. D. "Sam" Shannon has been given responsibility of Model 48 COIN aircraft flight operations, Charles W. Frick, GD/Convair vice president-engineering, announced earlier this month.

Shannon will report to W. W. Fox, director of engineering.

Since joining Convair over 20 years ago, Shannon has test or service flown almost every type of aircraft developed by the division. He has served as chief of engineering flight test, engineering staff specialist, and assistant chief engineer-flight test.



MISS TORCH — Edith Summerfield (Dept. 92) graces Convair fire truck, at right, after she was crowned 1964 "Miss Torch" by garnering most votes in fire department contest. In shot at left, G. K. Cox and C. F. Blair display trophy won by Dept. 101 as best fire safety housekeeper. Others at presentation were Fire Marshal Hugh Rae, Edith, S. R. Sharp, manager of industrial security, and Fire Chief D. D. Dimmitt.

Headquarters For TEL-4 Tasks Established at Merritt Island

Convair's TEL-4 off-site tasks are being implemented at the Air Force Eastern Test Range as first administrative personnel establish headquarters at Merritt Island, Fla., this month, according to W. T. Dorrance, Convair's TEL-4 program manager.

Convair is providing advanced telemetry instrumentation for launch operations at ETR under a contract from Pan American World Airways, Inc., and will be responsible for integrating it with government furnished instrumentation at the Merritt Island, Fla., telemetry receiving and recording station.

Now located at Merritt Island are C. J. Dutton, deputy program manager-off-site office, who will be in charge of contracts, industrial relations, and purchasing functions there; R. B. Thompson, deputy program manager-operations; L. R. McClain, technical group engineer; and R. R. Lyman, quality control supervisor.

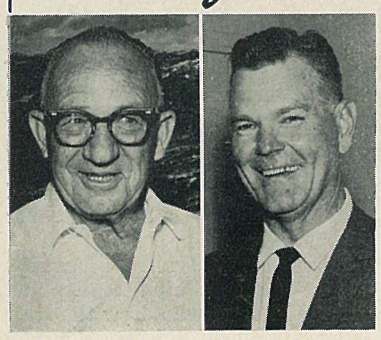
Also in residence are D. K. Hall, J. F. Carbone, L. R. Hixon, engineers; T. J. Nilson and H. D. Booth, technicians.

Others will be assigned to the Florida site as the program progresses, said Dorrance. By mid-January between 40 and 50 instrumentation technicians will be working at the Merritt Island location.

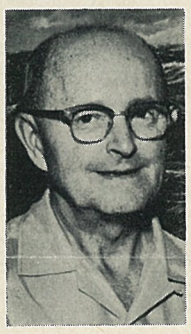
Initial tasks center primarily on becoming familiar with government furnished equipment as first shipments are received; installing cable trays, AC power supply cables, and room partitions. Construction of the Merritt Island building itself has been completed.

REWARDED—John R. Graves Jr. (center), GD/Electronics manufacturing control foreman, receives 25-year service emblem and congratulations from D. C. Prim, GD/E manager at San Diego. At far left is D. C. Newlon, manager of operations.

Log Book Entries



W. L. Berkheimer, Convair Dept. 102, left, and R. C. Westbrook, Dept. 6-53, have received their 25-year service emblems.



Alois Kirsch, Convair Dept. 401, also has received his 25-year emblem.

Papers Presented

STROMBERG-CARLSON, SD

BRENDING—D. O. "State of the Art," at Design and Drafting Automation Institute, U. of Wisconsin, Madison, Wis., Oct. 22-23.

Retirements

CONVAIR

CHATHAM—William D., Dept. 48-37. Seniority date April 25, 1947, retired Aug. 8.

GALLAGHER—James L., Dept. 171. Seniority date May 4, 1950, retired Sept. 29.

GAPEN—Ralph W., Dept. 218. Seniority date Aug. 25, 1949, retired Sept. 27.

TIPTON—Glen E., Dept. 401-5. Seniority date Dec. 20, 1950, retired April 25.

Personals

CONVAIR

We are grateful to Convair friends for the kind expressions of sympathy.

Mrs. Max M. Walker and family.

Rider-Driver

CONVAIR

RIDE WANTED from North Claremont to Plant 1, 7 to 3:30 shift. A. R. Barron, Dept. 119. Home phone, 274-0573.

Deaths

CONVAIR

GRIFFITHS — Helen, Dept. 6. Died Oct. 12. Survived by husband, George E.

KING—Nathaniel, Dept. 6. Died Oct. 14. Survived by mother, brother, and sister, Wuanita Helms, GD/Electronics.

Service Emblems

CONVAIR

Service emblems due during the period Oct. 16 through Oct. 31.

Twenty-five-year: Dept. 131, N. W. Merrill; Dept. 141, H. G. Rexroad.

Twenty-year: Dept. 14-5, J. W. Smith; Dept. 102, P. E. Liggett; Dept. 131, L. K. Thornbrugh.

Fifteen-year: Dept. 3-1, A. L. Brees.

Ten-year: Dept. 6, J. W. Howarth; C. A. Ives, T. E. Sladek; Dept. 25-9, B. W. Campbell; Dept. 48-70, W. A. Dershem.

ELECTRONICS

Ten-year: Dept. 23-61, C. C. Slaght.

STROMBERG-CARLSON

Ten-year: Dept. 34-00, Masa Mayekawa; Dept. 55-40, C. L. Cox.

S-C WILL SUPPLY COMPUTER DISPLAY FOR NAVY PROGRAM

Stromberg-Carlson division has reported receipt of a contract totaling more than $400,000 for special airborne computer display equipment for use in development of new anti-submarine warfare techniques.

The equipment was purchased by the U. S. Naval Air Development Center, Johnsville, Pa., which functions under the direction of the Bureau of Naval Weapons. The equipment will be designed and built in the San Diego facility of S-C.

The Anti-Submarine Warfare Laboratory of the Naval Air Development Center will use the display system in laboratory simulation of an advanced avionics system for ASW land and carrier-based aircraft. This equipment is a vital part of the Navy's revolutionary A-NEW program, which is designed to use a highly sophisticated airborne computer system to provide an advanced method for the search and destruction of enemy submarines.

In the system test model, a digital computer is used to process tactical situation data gathered from electronic sub-hunting equipment. By using the special computer display system furnished by Stromberg-Carlson, the mission commander and ASW system operators will be able to select and display only the information needed at any moment. The crew will be able to interrogate the computer for stored information and the response will be displayed to the mission tactical coordinator on the face of a CHARACTRON® Tube.

General Dynamics NEWS

Published by General Dynamics Corporation, One Rockefeller Plaza, New York, N. Y. 10020; with editorial headquarters at 3302 Pacific Highway, San Diego, Calif. 92112, P.O. Box 1950, telephone 296-6611, ext. 1071. Logan Jenkins, editor-in-chief.

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Affiliated editions of General Dynamics NEWS are published in Rochester, N. Y., covering GD/Electronics and Stromberg-Carlson, editorial offices, 100 Carlson Road, HUbbard 2-2200, ext. 2555. Fred E. Voss, editor; and at Groton, Conn., covering GD/Electric Boat, editorial offices at Groton, HIlltop 5-4321, ext. 200 and 513, Joseph Tracey, editor.

GD/CONVAIR IS HOST TO FOREIGN OFFICERS DURING OCT. 6 VISIT

Fourteen senior foreign officers, representing eight countries, toured Convair and Astronautics plants Oct. 6 as a part of an orientation program to familiarize them with the American way of life.

All are currently attending a 13-week course in amphibious warfare at the Naval Amphibious Base, Coronado, at the invitation of the Chief of Naval Operations.

At Convair they were briefed on the Model 48 COIN aircraft, C-141 empennage, Little Joe II launch vehicle and at Astro they were given a briefing and facilities tour.

Officers and the countries they represent were: Maj. Gen. Wu Wen-i, Chinese Marine Corps; Capt. Lo Chi, Chinese Navy; Capt. Jose Diaz Cunado, Spanish Navy; Capt. Sutheb Vasantasingh, Royal Thai Navy; Capt. Yun Chi Chong, Republic of Korea Navy; Lt. Col. Francisco Vazquez Dominguez, Spanish Marine Corps; Cdr. Faustino Rubalcaba Troncoso, Spanish Navy; Lt. Col. Antonius Franciscus Van Velsen, Royal Netherlands Marine Corps; Cdr. Jorge Arnillas De la Cotera, Peruvian Navy; Cdr. Phaleuk Saravasi, Royal Thai Marine Corps; Lt. Col. Napoleon C. Mangonon, Republic of Philippines Army; Cdr. Azor Xavier Muller, Brazilian Navy; Lt. Col. Myonk Ik Pyo and Lt. Col. Hong Soon Su, Republic of Korea Marine Corps.

Edith Elected Fire Queen

(Continued from Page 1)

apparent in department fire safety scores with Dept. 101 coming out just ahead of Dept. 25, plant engineering. The leading department had 92 per cent in combined good housekeeping inspection and questionnaire scoring. Dept. 25 scored 85 per cent.

Two departments, Dept. 141, C-141 production and last year's winner, and Dept. 116, electric bench, tied for third with 80 per cent. Percentages took into account type of work and number of employees in each department.

Dept. 101 was commended by Fire Chief D. D. Dimmitt for its clean, orderly, and well-arranged shop as well as its personnel's knowledge of fire safety.

"The annual fire safety and queen contest fulfilled its main purpose of generating interest and stimulating awareness of fire safety," said Chief Dimmitt. "Supervision cooperated by distributing questionnaire answers in advance and making sure that all their people were aware of fundamental fire precautions."

M. C. Val Dez, safety engineer, and W. D. Reed, manufacturing manager, stressed the importance of Fire Week activities at the division's general safety meeting.

The fire department was kept busy for days answering questions—as many as 30 calls in an hour. Extinguisher demonstrations were given throughout the plant by Fire Marshal Hugh Rae as he made his inspection rounds.

Chief Dimmitt urges all departments to continue the battle against fire risk throughout the entire year. He especially alerts to the danger of handling inflammable liquids and cautions operators of mimeograph and ditto equipment not to smoke near the machines.

"Fire precaution is not a one-shot drive," he said, "but a continuing day-by-day campaign."

BROCHURE PRINTED ON S-C's RECORDER

Stromberg-Carlson division of General Dynamics has produced a four-page illustrated brochure on its newly-developed S-C 4400 Computer Microfilm Document Recorder. The S-C 4400, developed at the S-C San Diego plant, records alphanumeric output directly from a computer or computer-generated tapes onto 16 mm or 35 mm microfilm for use in automated storage and retrieval systems.

APPRECIATION — In top photo, D. C. Wilkens Jr. (second from left), Convair director of industrial relations, receives plaque with flags of eight countries as token of thanks for division's hospitality during recent visit of foreign officers. Presenting plaque were Maj. Gen. Wu Wen-i (second from right) and Cdr. Faustino Rubalcaba Troncoso at far left. At far right is Col. J. H. Brinkley, of Naval Amphibious Base, senior foreign officer course director.

Telemetering Buoy Anchored Off Miami

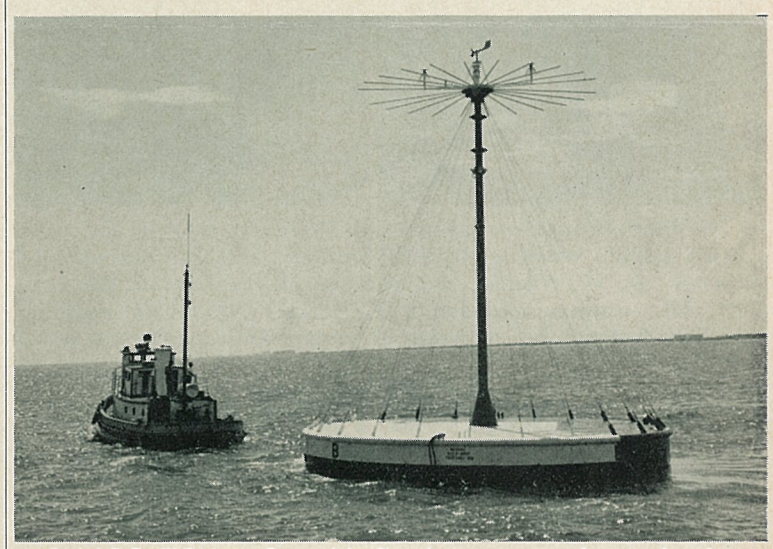
(Continued from Page 1)

whaler provided for inspection trips.

Kosic and Hyland were replaced over last weekend by Louis Scott, Convair engineer, and Jack Heming, research and development technician. New teams will be assigned to the Florida location each month.

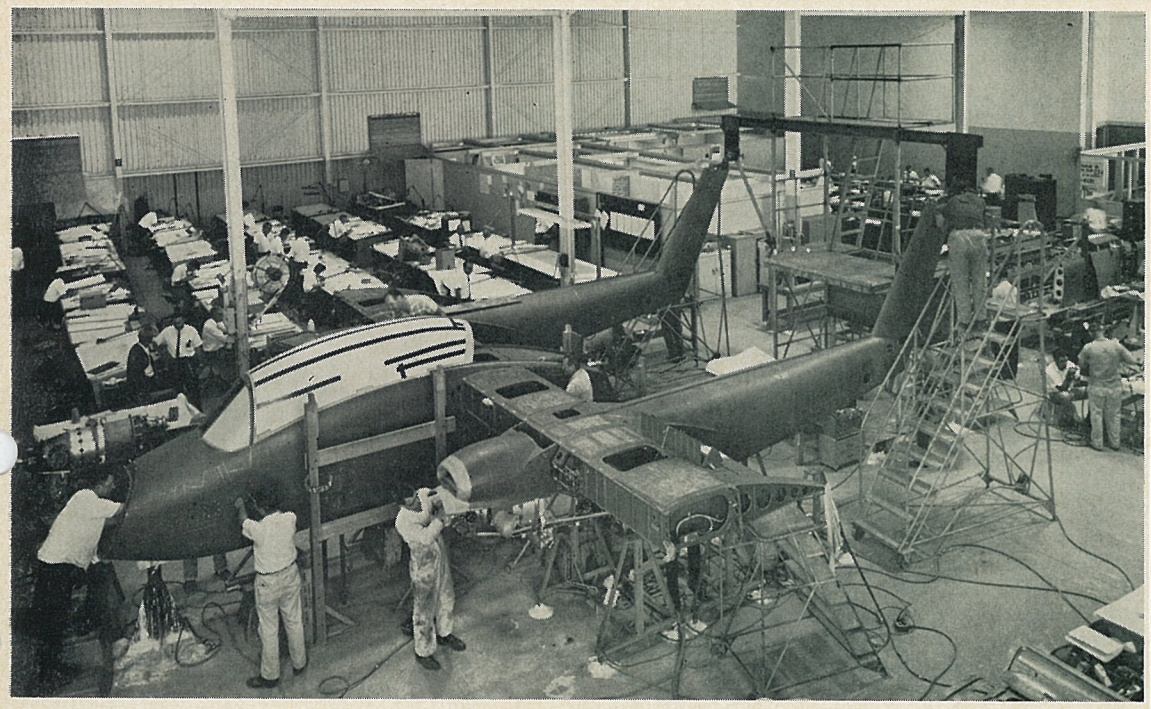
Bravo will remain at its present mooring site for the next couple of months, or until a storm front with winds of at least 60 knots sweeps by to assure full scale tests to prove out model data of the buoy's performance.

Plans now are going ahead for launch of the second prototype, Alpha, early next year. At present, negotiations are under way for use of the Pacific Missile Range facilities with mooring site to be off Point Mugu, Calif. Subcontract for hull fabrication will be let within the next few weeks.



ON LOCATION — Convair's first long range telemetering buoy, developed for acquisition of oceanographic and atmospheric data, was towed by tug Oct. 1 to mooring site a mile and half off Hollywood Beach, Fla. It will remain there at least a couple of months for stormy weather checkouts.

VIP FLIGHT—Maj. Gen. Andrew R. Lolli, 28th North American Air Defense Command (NORAD) commander, receives inscribed F-106 model from Convair's C.W. Frick, vice president - engineering, marking General Lolli's first Mach 2 flight in F-106 at George AFB, Calif., recently. General Lolli was first Army officer to fly in Convair jet interceptor.



IN WORKS — Convair's prototype Model 48 COIN aircraft takes shape in closely-guarded Bldg. 69, division's first engineering prototype facility where all engineering (in background), fabrication, assembly functions were based from start of project last March to plane's completion last month.

Production of Model 48 Prototype Closely Guarded Secret—No Leak

When GD/Convair's Model 48 COIN plane was revealed Sept. 29, doors of the division's engineering prototype facility were thrown open for the first time in six months to disclose the operation that made the high-geared production possible.

And, some 200 Convair people saw "daylight" once more after their "disappearance" six months before.

Convair's first closed-door operation — or "Skunk Works" — turned out a fully-completed, ready-for-production plane in that six months.

Normal production time for such a craft is 13 months!

"We had one purpose," said Convair President J. H. Famme, "and that was to build an airplane quickly and inexpensively."

All operations necessary for the task—engineering, tooling, manufacturing, material — were located in one isolated building, Bldg. 69, for expediency and security to keep the competition in the dark.

"A simple organization and the closest coordination between all functions involved is paramount in a prototype production of this kind," said J. M. Adamson, director of design development, who was elected by Famme to coordinate the Model 48 organization.

"However, success of the 'project-type' operation depends primarily upon the key people chosen to implement the program," Adamson continued. "Each must be aggressive, imaginative, and unrestrained by 'time-honored' methods, systems and procedures, and policies. Each must be a free thinker, willing to subjugate the sanctity of his home department's operation to the good of the end product."

N. R. Keough was named manager of the engineering prototype facility to oversee all operations and to choose his trusted and experienced production team.

James Wainwright was given responsibility for all engineering.

Thirty design engineers, familiar with the COIN proposal, were called together by Adamson on March 19 and informed of their new assignment. They dropped from sight at that minute and were never seen on the job by their former supervisors until after their task was completed.

The proposal for a Convair Light Armed Reconnaissance Airplane, delivered to the Bureau of Naval Weapons, was the "bible" of design engineers. Specifications were followed exactly, and, at conclusion of the task, a complete set of drawings for production had been compiled.

Within three weeks from start date, the first pre-release drawing was ready and Keough began pulling in his key people as necessary to convert drawings into hardware.

Willard Martin was made shop supervisor; Al Oberg was tapped to direct tooling and fabrication. John Wasem, manufacturing specialist, coordinated release of engineering drawings in desired manufacturing sequence.

The sequence was established on the basis of lead times necessary for each assembly, and engineering drawings released as needed to support the sequence.

Since the cockpit—heart and brain of the craft, containing all the complex instrumentation—required the longest lead time, all schedules were geared to its requirements. First assembly on the drawing board and into the manufacturing process was the pilot's floor torque box, initial component in the build-up of the cockpit area.

Engineers and production men worked hand in hand to coordinate every process, consulting over each other's shoulders at desks and machines for exact requirements. Detailed parts were made from one assembly drawing to expedite fabrication and save all-precious minutes.

Each major component and system was assigned to a lead engineer who was responsible for design and release of drawings on schedule and within all specifications. A factory leadman worked with his engineering counterpart to keep abreast of the design picture at all times. Leadmen had complete responsibility for monitoring their parts, procurement, and assembly—on schedule.

Engineering drawing release priority was drawn up and a target release schedule established for each engineering group for all drawings due for release every Monday morning at 8 o'clock sharp. Each morning began with a quickie meeting to iron out problems, conflicts, or

(Continued on Page 4)

THEY KEPT SECRET — Three close-mouthed Convair women (from left), Fern Barton, Deloris Meredith, and Evelyn Gilger, did their part in guarding secret of Model 48 as only women assigned to project.

CONVAIR GIRLS 'IN THE KNOW'

Three Convair women didn't tell all they knew—to disprove the old saw—during the six months they were "entombed" in the off-bounds prototype facility during production of the first Model 48.

Evelyn Gilger, secretary to N. R. Keough; Deloris Meredith, who handled all stenographic and clerical work for the engineers; and Fern Barton, the one-gal blueprint reproduction department, kept sealed lips about their work throughout the "secret" project.

The three, only women assigned to Bldg. 69, were hand-picked for their assignments. Each was chosen for her high capability on her job, and for her trustworthiness off.

Four Divisions Are Represented At NMA Meet

Officers from at least four General Dynamics Management Clubs are attending the National Management Association's "Progress with Purpose" convention in St. Louis, Mo., this week, Oct. 21-23.

Fort Worth Management Club is represented by F. B. Thompson, president; R. L. Sullivan, board chairman; John Payne, NMA national director; R. M. Geisler, recording secretary; and L. E. Maxwell, H. R. Bean, and Horace Booth, directors.

Payne attended an NMA board of directors meeting preceding the convention and Maxwell is in charge of the FW club's audio-visual display at the Idea Fair exhibit.

Delegates from the GD/Astronautics club are: D. K. Slingsby, president; R. T. Bauman, past president and NMA director; J. R. King, first vice president; J. C. Duffy, second vice president; G. J. Gonlag, treasurer; J. F. Baebler, financial secretary; J. L. Mumford, recording secretary.

Convair Management Club officers in attendance are: W. J. Wood, president; M. L. Sweeney, first vice president; Harold Hahn, recording secretary; Robert Macomber, financial secretary; and K. K. Verseckes, treasurer.

From Pomona Management Club are: R. A. Dutton, president, and W. F. Nye, vice president.

People Mobility

Interdivisional Transfers

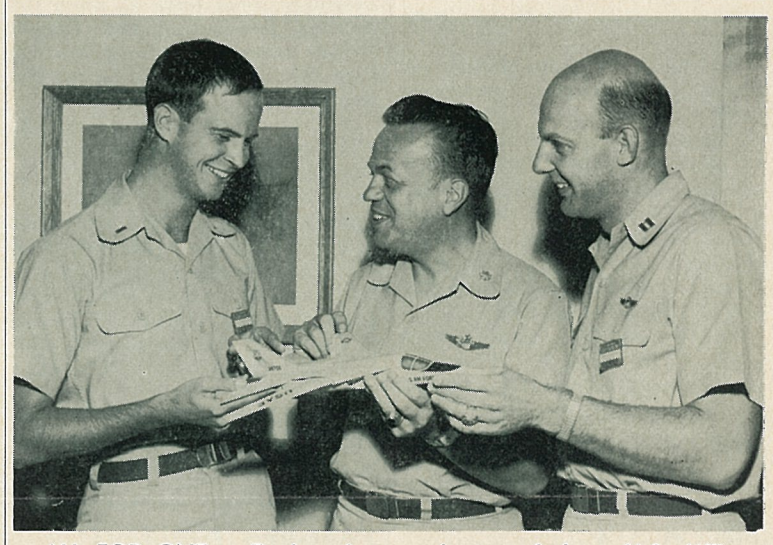
(Following are recent personnel transfers among General Dynamics divisions. In parentheses are dates when individuals joined the company.)

RICHARD C. O'SULLIVAN (1962) from Corporate headquarters to Electric Boat as comptroller; **BURT A. REES** (1956) from Astro to electronics engineer, Convair; **GUS PAPPAS** (1959) from Canadair to airframe design, Fort Worth; **LELAND DRESSER** (1950) from Astro to Electronics-Rochester production engineering; **CHARLES M. BOX** (1948) from Astro to Fort Worth manufacturing control.

BENOIT LA CHANCE (1957) from Astro to Electronics-Rochester mechanical engineering; **DANIEL J. CHIARAPPA** (1960) from Astro to design specialist, Convair; **NORMAN B. LEE** (1947) from Astro (Abilene, Texas) to Fort Worth tool and operations planning; **ERICH W. WOLF** (1963) from Astro to structures engineer, Convair; **NORMAN C. JOHNSON** (1959) from Astro (Plattsburgh, N. Y.) to production engineering, Electronics-Rochester.

JEAN L. K. INGLEHEARN (1958) from Astro to General Atomic; **JOEL G. LINEBARGER** (1951) from Astro (Salina, Kan.), to production control, Electronics-Rochester; **JOHN W. WOHLWEND** (1964) from Astro to Convair engineering; **JIMMIE D. EVANS** (1960) from Astro (Abilene) to Fort Worth manufacturing control; **RALPH E. BANACH** (1955) from Astro to planning and controls, Fort Worth; **EDWARD A. IPSER** (1961) from Astro to support equipment design, Fort Worth.

JOHN E. WILBAND (1958) from Astro (Abilene) to Fort Worth support requirements; **ROBERT W. HOTCHKISS** (1963) from Astro (Salina) to production control, Electronics-Rochester; **ERNEST A. THOMPSON** (1960) from Astro to Fort Worth support requirements; **HOWARD GAINES** (1956) from Astro to Electronics-Rochester; **JOHN T. RODGERS** (1950) from Astro (Abilene) to project coordination, Fort Worth.



ALL FOR ONE — Engineering graduates of three U.S. Military Academies help monitor F-111 development in AFPR's development engineering section. From left: Lt. Richard H. Ellis (Air Force Academy); Maj. Edward A. Kostyniak (West Point); and Capt. Robert R. Manuel (Annapolis).

Can You Top It?

F-111 Team Includes Grads Of Three Military Academies

The bi-service F-111 is getting "tri-service" attention.

Graduates of three United States military academies are represented in AFPR's five-man development engineering section, which monitors engineering on the F-111 and other GD/FW projects.

The men and their areas of responsibility are: Lt. Richard H. Ellis, F-111 fuel system; Maj. Edward A. Kostyniak, electronics group; and Capt. Robert R. Manuel, crew module.

Lieutenant Ellis is a 1964 graduate of the Air Force Academy. Major Kostyniak graduated from the U. S. Military Academy in 1949. And Captain Manuel earned his degree from U. S. Naval Academy in 1953.

All three engineers now wear Air Force blue. And all three serve under Lt. Col. G. W. Norris, chief of development engineering in AFPR.

Colonel Norris admits the chances of such a trio winding up in the same outfit—in the same section—are small.

But the coincidence can probably be attributed in part to a former government policy. Before the Air Force Academy started turning out officers in 1959, about 25 per cent of the graduates of Annapolis and West Point were assigned to Air Force.

Now, of course, a majority of graduates enter the service for which they were specifically trained.

Which makes the odds of getting "tri-service" attention on a bi-service airplane pretty high.

Astro Plays Host To Quality Parley

GD/Astronautics was host for the October meeting of the General Dynamics Supplier Quality Control Working Committee.

Charles Wallman (GD/Convair), committee chairman, and L. I. Medlock (GD/Astro) handled opening statements and discussions of highlights of the Corporate Quality Control Panel Meeting (in Washington, D. C.), respectively.

Also appearing on the two-day program were Sam Braun and T. J. Marcella of Astro; C. W. Schacht, S. K. Chambers and C. L. Penland of GD/Pomona; S. L. Taylor of GD/Fort Worth; and M. E. Walker of GD/Convair.

Two CIPs Earn Cost Award

W. J. Durflinger, Dept. 115 assistant foreman, was MacSave-it winner for September at last week's Convair Management Club meeting for two Cost Improvement Proposals.

Although Durflinger's CIPs were not in the big money class, both showed ingenuity in putting to use material on hand and combining operations to save time in machine shop operations.

One suggested use of partially machined parts, already in the warehouse, instead of raw forgings for 990 spares and saved $1,700. The other, worth $265, combined 13 milling operations into four with one setup to save three hours a part on 340 spares with a shop aid and profile devised by Durflinger.

Durflinger also had a joint CIP approved recently, and has nine others to his credit since 1957.

Cathay's 880-M Off to Orient

Cathay Pacific Airways Limited took delivery last weekend of its second Convair 880-M jet transport.

The plane had been in customer flight tests during the preceding week.

Cathay's second 880-M was to be flown to Hong Kong to join the first Convair jetliner over the airline's Far Eastern routes. The Hong Kong based line, an associate company of Butterfield and Swire, took delivery on its first 880-M in February, 1962.

Convair 880-Ms now are in service with Civil Air Transport of Formosa, Japan Air Lines, Japan Domestic Air Lines, Viasa Air Lines of Venezuela, Alaska Airlines, and the Federal Aviation Agency, as well as Cathay.

GD Gardeners Enter Show

The best of late-summer blooms —chrysanthemums and roses— will be displayed by General Dynamics gardeners during the ARA-CRA Fall Show, Nov. 1 in Balboa Park's Floral Association Building.

Entries will be accepted between 7 and 11 a.m. the day of the show. No pre-registration is required, no entry fee is charged, and any General Dynamics employee or dependent is eligible to enter.

Everett Henderson, ARA commissioner, and Henry Boyd, acting CRA commissioner, have announced judging in eight divisions.

Divisions 1 through 4 will be for chrysanthemums in 25 classes; Division 5 is for arrangements in six classes; Division 6 is for children, divided by age into 5 to 11 years, and 12-16 year classes; Division 7 covers three classes of roses; Division 8 is for corsage entries in three categories.

Best of show winners in Divisions 1 through 7 will receive turkeys, except that winner of the children's group will receive an alternate prize. Class winners will be given merchandise awards.

The show will be open to the public without charge from 1 to 6 p.m.

IRC Bowling Meet Deadline Approaches

GD bowlers must sign by next Friday (Oct. 30) to be eligible to take part in the annual Industrial Recreation Council bowling tournament, reminds Mike Brooks, IRC tourney chairman.

The keg battle will be held at Pacific Recreation the weekend of Nov. 7-8.

Entry forms still are available at Astro, Convair, GD/E, and Stromberg-Carlson employee services centers or from Brooks.

Production of COIN Prototype Well Kept Secret at Convair

(Continued from page 3)

lack of information.

"A problem was anything that would keep the required drawings from being released by the next Monday," said Keough.

"The only way to get our job done in the allotted time was to set a definite target and responsibility for each person and run interference to see that it could, and would, be done."

A "hot board," maintained by Wasem and monitored by the hour showed items running behind schedule. Manufacturing control tracked down the causes of hold-ups to get things moving.

Every part that went into No. 1 Model 48 was weighed for pounds—and dollars and cents. John Jodka, manager of cost accounting, charted the cost targets and actualities throughout the entire program to keep it to budget.

Each piece of the plane had a weight bogey—even Test Pilot John Knebel. He was put on a strict regime to bring his poundage down 24 pounds, from 194 in June to 170. By Oct. 6 he just had three to go!

As engineers kept to their release schedule, Oberg saw that assembly tools were at hand for detailed fabrication and Harold Dixon, manufacturing control, kept the parts moving in for the week's work.

All manufacturing operations were done within the building, if possible. Anything that had to be done on other manufacturing equipment in the plant was kept to a minimum to avoid revealing the object under construction. A fictitious bonding evaluation program was set up for fabrication of the rib of the horizontal stabilizer and the wing rib. The wing went into the Bldg. 1 bonding oven on July 4 when the rest of the plant was celebrating the holiday.

Both Keough and Wainwright praise the all-out efforts of each person working on COIN. All pitched in to get the job done and willingly cancelled all vacations until after the critical roll-out date.

Key COIN personnel, in addition to those already mentioned, are:

Russ Strayer, in charge of technical engineering groups: Joe Jackson, dynamics; Robert Westbrook, stress; G. V. Smith, weights; V. J. Schack, instrumentation.

Engineering group leaders were Ford White, body; Ladislao Pazmany, wing and forward boom; J. E. Whiston, tail and aft boom; J. T. Rudis, propulsion; J. Hoover, furnishings; J. Malthaner, controls; Seth Aldridge, thermodynamics; S. R. Milis, electrical; E. S. Soltesz, avionics; R. L. Trussell, landing gear and mechanisms; R. W. Casebolt, hydraulics and pneumatics; R. R. Wahler, armament; J. A. Gesiakowski, lines and loft; R. G. McGeary, flight test.

Top production leadmen were Al Sharp, power plants; B. A. Shrouds, fuselage; Frank Bender, booms and empennage; W. E. Porter, wing; W. I. Gregory, electrical; Ross Dix, sheet metal fabrication; A. J. Woods, planning and tool design.

G. W. Zahrte, manager of material, and W. R. Bruce, director of operations, played watch dogs on outside vendors, even camping on the doorstep of vendors' plants in person to wait for needed parts.

And the rigorous control and supreme effort of all workers every minute of the six-month stretch saw a finished plane—the Model 48 Charger—roll out, on schedule, meeting every target of design, cost, and time.

Year-End Holidays Set For GD Plants

Up-coming holidays in store for General Dynamics people employed at plants and off-site facilities in California are Thanksgiving Day, Nov. 26, and two extra days over the Christmas and New Year's legal holidays.

Astronautics, Pomona, Convair, Stromberg-Carlson, GD/Electronics facilities in San Diego will get the Thursdays before Christmas and New Year's off, making two long four-day weekends. Except for necessary maintenance and security, plants will be closed Dec. 24 and 25, Dec. 31 and Jan. 1.

GD/Astro Engineer Authors Two Books

McGraw-Hill Publishing Co. has just released two "self-teaching" books by GD/Astro's P. H. Selby, a Dept. 262-3 senior research engineer. They are available at San Diego book stores.

The programmed instruction books, one on trigonometry, another on logarithms, are forerunners of what will ultimately be a series of six to eight books leading students from basic arithmetic through integral calculus (**GD/NEWS**, Nov. 27, 1963).

Selby pointed out that each volume is entirely self-contained and is for general instruction or review use by industry, military agencies, technical and trade schools, and individuals with a desire to learn mathematics.

Salvage Hours Set At Convair, Astro

Both Convair and Astro salvage yards will be open for employee sales this month. Convair's yard will hold sales hours this coming Saturday (Oct. 24) and the Astro yard at Plant 71, Kearny Mesa, will be open from 8 a.m. until noon the following Saturday (Oct. 31).

Computer Console On Display at FAA

A S-C 1090 Computer Display Console, developed and built at Stromberg-Carlson's San Diego facility, was on display at Federal Aviation Agency headquarters in Washington, D. C., during the recent two-day FAA meeting, Sept. 30-Oct. 1.

The S-C 1090 was exhibited along with a score or more electronic and computer units dealing with air traffic control and all-weather landing improvements to users of the nation's airways attending the meeting. Over 160 leaders from private, commercial, military aviation organizations were present.

Two S-C 1090s have been purchased by FAA for use at its National Aviation Facilities Experimental Center near Atlantic City, N. J. There they are in use as computer monitors in laboratory simulation of new air traffic control systems.

Corporate Offices Move From Bldg. 19

Corporate offices at San Diego were moved last week from Bldg. 19 to the third floor of Bldg. 51, within Plant 1.

R. R. Brewton, government accounting specialist; J. D. Eiland and W. R. Crain, staff assistants, occupy Room 366 offices. L. V. Nigro, tax attorney, and E. W. Call, senior auditor, are in Room 371 offices, all located along the east aisle.

Phone extensions remain the same.

R. I. Morse, West Coast wire communication assistant, and switching center operations are scheduled to move to Bldg. 5, second floor, on Nov. 9.

When telephoning, never mind the weather. Get to the point. Telephone time costs money.

Resources Tops Savings Target

Cost reduction savings through projects monitored by Convair's Resources Economics were well ahead of target at the end of the nine-month reporting period.

The $419,121 in savings accrued by Sept. 30 was over $44,000 ahead of the $375,000 goal at that point, pushing the division well on its way to achieving, and likely exceeding, the year's target of $500,000.

Utilities expense was significantly reduced by renegotiation of the electrical power contract for the ramp site to save $2,000 a month. Over $9,000 a month savings by reduction of paperwork in all departments was a result of a management improvement program initiated in 1963.

Methods collaborated with wind tunnel management to achieve a cost avoidance of $4,800 per month through purchase of surplus Navy equipment instead of new for the low speed wind tunnel. Plant engineering piled up a $7,000 a month reduction in expenses by realignment of telephone equipment.

Data processing did its share by streamlining operations to reclaim $2,100 a month and added another $3,900 to the black side of the ledger by converting tasks to a different computer system, thus reducing computer tape units and other programming requirements.

Resources Economics is on the look out constantly for ideas which will save the company money. Any department or individual who feels he has found a way to cut overhead is urged to contact R. H. Williams, ext. 525, Plant 1.

S-C Functions Moved at SD

A consolidation of Stromberg-Carlson functions at San Diego Plant 1 saw some 75 S-C people relocated this month to the third floor of Bldg. 51.

Now in the newly-renovated area are S-C program manager, C. V. Shannon; J. A. Moore, legal counsel; Payne Johnson, communication; N. J. Barnes, controller; E. F. Carey Jr., international requirements; G. W. McGinley, industrial requirements; J. H. Redman, government requirements; L. A. Wood, material; J. H. Thompson, operations, and all persons reporting to them.

Engineering, factory, quality control and associated functions, including over 300 S-C people, remain at the Hancock St. facility.

Key personnel located there include A. H. Wisdom, manager of engineering. R. L. Brouillard, planning, program and contracts administration; and I. L. Kemper, manager of reliability and quality control.

Industrial relations, under J. W. Swank, remains in its present location adjacent to the lobby of Bldg. 51, Plant 1.

Prophet Celebrates With Bargain Meal

General Dynamics diners will have a chance to eat a roast turkey dinner at prices of 45 years ago tomorrow (Oct. 22) when the Prophet Co., operator of GD cafeterias, observes its 45th anniversary.

Astro and Convair cafeterias will serve a complete celebration meal for 45 cents, plus tax.

Menu will include turkey, dressing, potatoes, peas, giblet gravy, cranberry sauce, green salad, roll and butter, drink, and anniversary cake.

Skate Club to Hold Halloween Party

General Dynamics Ice Skating Club will hold its annual Halloween Costume Party at Mission Valley Ice Plaza, 6:30 p.m., Oct. 29.

The event will feature games and free refreshments, with awards for game winners and best costumes. Those in costume will also be eligible for a special door prize.

A special admission price of 50 cents per skater, including rental skates if required, will apply on the party night only. No skating instruction will be given.

The following Thursday, the club will resume regular weekly sessions, with free instructions for both beginners and advanced skaters, and half-price admission during a 6:30 to 8 p.m. private session.

The group is open to all San Diego area General Dynamics employees and their families.

Nov. 6 Is Deadline For Mgt. Club Golf

Management Club golfers must sign by Nov. 6 if they plan to compete in the first annual tourney sponsored by the San Diego Area Council, NMA.

All present and past members of Astronautics, Convair, and GD/Electronics Management Clubs are eligible to enter the Nov. 21-22 links medal tournament. It will be played over Cottonwood Country Club course.

Entries may be made through division representatives: Convair —Terry Kell, Plant 1, ext. 605, zone 423-00; GD/E and S-C,— Ernie Paul, Stromberg-Carlson, Hancock St., ext. 2193.

Astro Management Club members will receive entry forms via mail.

First Flight Covers Planned For Charger

Covers commemorating first flight of Convair's Model 48 Charger will go on sale at Convair employee services immediately following the new plane's maiden flight, set for this week.

Jack Benedict, CRA Stamp Club commissioner, has arranged for 500 covers to be postmarked with time and date of first flight. They will sell for 25 cents each, as long as the supply lasts.

FIRST LADY — Aviatrix Joan Merriam Smith, who recently circled world following Amelia Earhart's 1937 flight plan, achieved another first when she flew in Convair-built F-106 at twice speed of sound. C. W. Stevens (left), Convair rep, presented her with F-106 model and credentials with Lt. Col. John H. Rogers, 456th FIS commander, Castle AFB, Calif., at far right.

CLUB HONORS—W. J. Durflinger, Dept. 115, at right in upper shot, receives Convair Management Club's September MacSave-it trophy from O. C. Banke, machine shop foreman. In lower photo, C. W. Frick, vice president - engineering, presents club's first Sportsmanship Awards (softball) to joint winners, Tony Berardini, Dept. 102 assistant foreman, and W. H. Parry, general purchasing agent, for their interest, participation, and furtherance of sports.

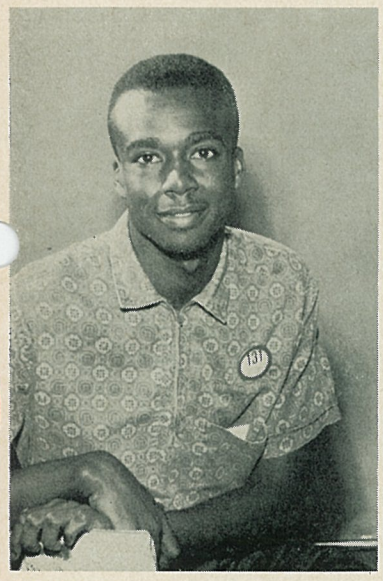
ES/CIP Savings Boom Ahead of Goal At Close of Third Quarter of Year

Employee Suggestion/Cost Improvement Proposal savings at Convair at the end of the third quarter were running ten per cent ahead of the dollar target mark.

In the first nine months of this year $548,200 savings was credited to worthwhile suggestions from employees. This figure is 85 per cent of the year's ES/CIP savings goal of $639,000.

During the last three months over half of all suggestions submitted have been approved and installed, far ahead of the industry average. Suggestions are constantly improving in quality and size of savings, and more people are turning in their good ideas, says Vern Sharp, chief of plant engineering, who is responsible for the ES/CIP program.

START CAREERS — Four new GD/E and Convair apprentices now learning new trades in four-year course are (from left) Walter Coyle, Leon Stallings, both assigned to GD/E; Ezell Ware Jr., John Tatolli, both Convair Dept. 115.



NO. 11 — Joseph Kelly joined Convair's apprenticeship program this month as 11th and newest apprentice in training.

New Apprentices Begin Training

Five new apprentices entered the four-year General Dynamics training program at Convair and GD/Electronics during the last month, first to be accepted in more than two years.

Walter Coyle and Leon Stallings began their apprenticeship as machinists in GD/E early in September. Ezell Ware Jr. and John Tatolli started their machinist training with Convair Dept. 115. Joseph Kelly joined the program last week as an electronics apprentice in Dept. 131.

There are now 11 apprentices in the program which is administered by Convair educational services with Wayne Turner, coordinator.

All of the new apprentices are enrolled in San Diego Junior Colleges' curriculum to supplement their on-job training.

Club Observes 10th Birthday

Convair Sports Car Club members celebrated the 10th year of the club's existence at the annual dinner-dance last Saturday, Oct. 17, with around 60 attending the gala affair in Gillespie Field Clubhouse.

The evening was kicked off with a happy hour at 6:30 p.m., followed by a catered dinner and installation of new officers.

Outgoing president, Bob Chillo of Dept. 6, introduced the slate for the coming club year.

They are: Al Oehler, Dept. 131, president; Clark Kerr, Dept. 6, vice president; Charles Backus, treasurer; Carol Backus, secretary.

Judicial board members are Gerry Coffey, Al Cooper and George Nicoloff, both Dept. 6; Bill Pesek, Bill Stemple, Dept. 6; Bob Weissinger of General Atomic.

Recorded music for dancing was provided through courtesy of Joe Harris, Snow Ski Club commissioner. Games and contests, with prizes for winners, also highlighted the evening.

Next meeting will be Nov. 4 in the Convair main cafeteria, Pacific Hwy.

Jim Halfacre Tops Masters

Jim Halfacre topped the master class in .22 Police Course competition at both Sept. 27 and Oct. 11 CRA Pistol Club matches.

His 288 was just a point ahead of Commissioner Joe Williamson's score Sept. 27 and in Oct. 11 shooting he repeated, with a 292 to Williamson's 291.

W. G. Walker was first in expert class on Sept. 27 with 293. Jim Mardis took the expert top spot on Oct. 11 with 289.

In Sept. 27 .45-cal. Short National, Williams was first, 258, and Halfacre stood second by virtue of bull's-eyes. He and Walker both shot 250s, but Halfacre had 4Xs to Walker's 3.

Halfacre went on to win first in the Oct. 11 .22-cal. Short National with a 290. Williamson shut out Walker again for second with 287 and 8Xs. Walker had 7Xs.

Dale Young, Halfacre, Williamson, and Walker keep their spots on the club's competitive team for the last three months of the year.

Joe Sopko Snags Cash For Big Fish

Joe Sopko, retired from Dept. 25, caught a big one for the CRA Fishing Club's monthly cash award. He won $10 for a 33-lb. Chinook salmon caught from the Klamath River in Northern California. He and his wife pulled in 650 lbs. of salmon during their recent fishing trip.

Next regular Fishing Club meeting will be the third Tuesday of next month (Nov. 17) in Gillespie Field Clubhouse. Potluck dinner is at 6:30 p.m. and business session at 7:30.

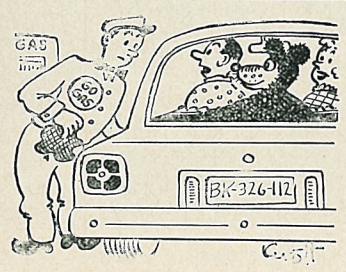
Ilene Wilson Low For Women's Golf

Ilene Wilson shot low net score in first flight of the GD Women's Golf Club's Oct. 10 tourney at Cottonwood course.

Runner-up in first flight (18 holes) was Mary Ransom.

Second flight, nine holes, was won by Ann Gagnon. Barbara Bugbee was runner-up.

River Valley course in Mission Valley will be site of the Nov. 14 monthly tournament.



"I forgot to lock the car when we stopped at West Yellowstone."

Sports & Recreation

WINNAHS, ALL — Battling Pre-War Personnel beam broadly after receiving individual trophies for sweeping CRA slow pitch softball tourney in tight play-off with GD/E Operations. Presentation was made at Oct. 8 victory banquet. Front row (from left) are: Tony Berardini, Jack Swank and daughter, Cindy, No. 1 fan and team mascot, Fred Aguero, Pete Beyrer. Second row: Gil Crosthwaite, Frank Cruz, Bernie Armas, Steve Rivas, Ed Rinks, Mike Clark, Ray Lucero. Back row: Mel Thurman, Don Sanchez, Dean Froggette, John Evans, Ken Wulfemeyer.

'Doc' Ribble and Dick Glaeser Win in Apple Valley Golf

"Doc" Ribble and Dick Glaeser shot their way to top cash prizes with low net scores in Flight A and B at the Apple Valley golf tourney for Stromberg-Carlson and Electronics linksmen the weekend of Oct. 10-11.

Fifty-seven journeyed to the desert oasis for a full two days of golf in perfect weather. They headquartered at Apple Valley Inn.

Winners of Flight A in the 36-hole match were: Ribble, first, 137; Ellsworth Henderson and Don Illeman tied at 140.

Flight B winners: Glaeser, first, 143; Ray Sandoval, second, 144; Lloyd Moran, third, 154.

First place was worth $10; second and third both $5.

Those who won two golf balls each for landing nearest the cup on par-3 holes in the hole-in-one tourney were Illeman, Sandoval, Wynne Jones, Ribble, Ernie Paul, chairman of the outing, Ray McIntyre, Sam Veneziano.

Low net scores among the women were Mabel Dunn, 163, four golf balls; Wanda Rose, second, 174, three golf balls; Helen Wood, third, 179, two golf ball; Margaret Clark, fourth, 189, one golf ball as prize.

While men devoted themselves to golf, wives were taken on a tour of the Apple Valley development and outstanding modern homes in the area.

Next Apple Valley trip will be arranged for March, Paul said.

Discount Football Tickets Offered

Football fans at Plant 1 can get discount tickets at employee services starting this week for the next Chargers' home game.

The San Diego ball club will meet Oakland Raiders Sunday, Nov. 1, 1:35 p.m. at Balboa Stadium.

Regular $3.50 seats are offered to GD employees for $2.50. They are located at aisle 14, upper deck, west side.

CRA Calendar

(Convair Recreation Association has some 30 activities in operation for Convair, GD/E, Stromberg-Carlson people. For information call CRA Headquarters, ext. 1245.)

★ ★ ★

AEROMODELERS — Flying sessions Saturday and Sunday mornings, 8 a.m. to 1 p.m., Clairemont Flying Site.

CAMERA CLUB — Meeting Nov. 1, 7:30 p.m., Photo Arts Bldg., Balboa Park. Demonstration of photographing for Christmas cards.

FENCING — Workouts and instruction each Friday night, 7-10 p.m., YWCA, 10th and C Sts.

GARDEN CLUB — Fall chrysanthemum and rose show Nov. 1, Floral Association Bldg., Balboa Park. Open to public at 1 p.m. Meeting Nov. 4, 7:30 p.m., same location.

GOLF — Final rounds of CRA Plant Championships Oct. 24 and 31, Bonita Valley Country Club.

GUN CLUB — Troy trapshoot Oct. 25, Gillespie Field Range, CRA club shoot Nov. 1.

ICE SKATING — Thursday ice skating sessions for GD people, Mission Valley Ice Plaza, 6:30-8 p.m. Halloween costume party 6:30 p.m., Oct. 29.

JUNIOR RIFLEERS — Club meeting tonight (Oct. 21), 7 p.m., ARA Clubhouse. Semi-annual trophy shoot, Gillespie Field Range, 8 a.m., Oct. 31.

MODEL RAILROAD — Work nights, Fridays, 7:30 p.m.; open sessions, Sundays, 1-4:30 p.m., House of Charm, Balboa Park.

MOVIES — Reduced prices for GD people at State Theater, Euclid and El Cajon Blvd. General admission: adults, $1; children, 35¢.

PISTOL CLUB — Club shoot 9:15 a.m., Oct. 25, San Diego Police Pistol Range, Federal Blvd. and Home Ave.

RADIO CLUB — Next meeting Oct. 29, 8 p.m., Harbor Drive club headquarters.

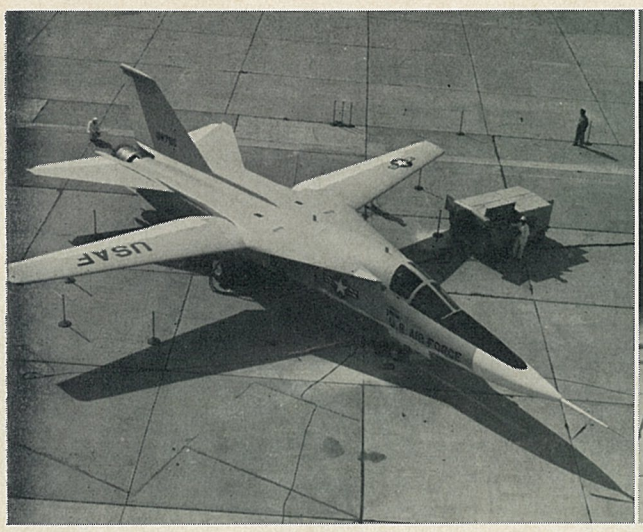
RIDING CLUB — Meeting Nov. 5, 7:30 p.m., Gillespie Field Clubhouse.

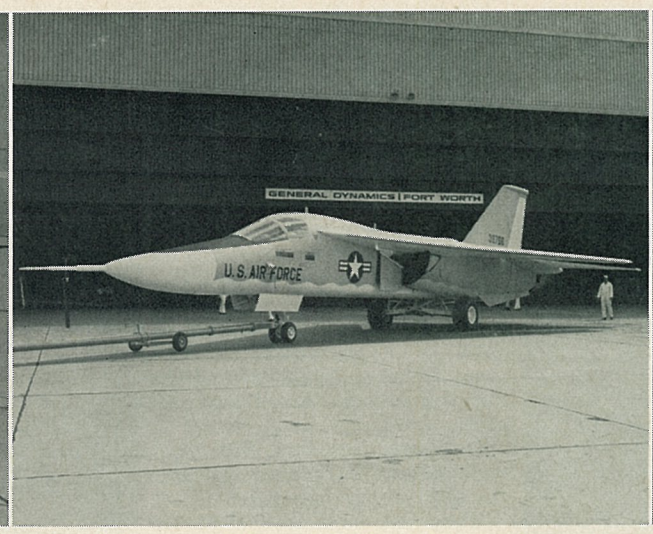
ROCKHOUNDS — Meeting Nov. 12, 7:30 p.m., Gillespie Field Clubhouse.

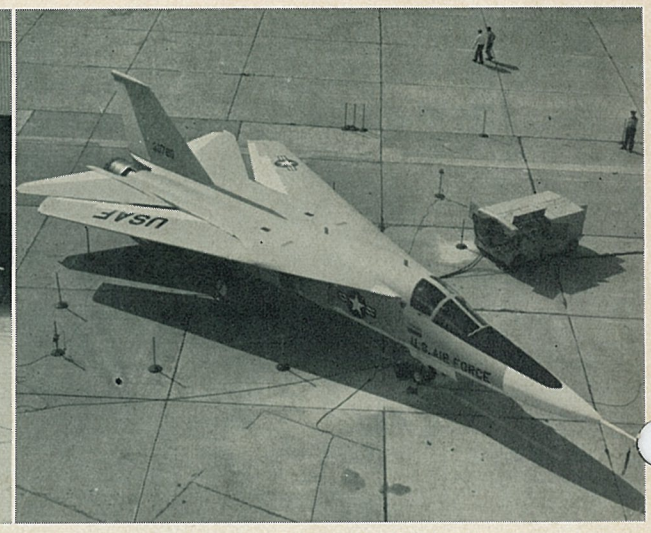
SPORTS CAR CLUB — Meeting Nov. 4, 7:30 p.m., Convair executive dining room.

STAMP CLUB — Meeting Nov. 5, 7:30 p.m., Convair executive dining room.

WATER SKI CLUB — Skiing weekends on Mission Bay on phone-call basis. Call Gene Sevigny, ext. 1778, Plant 1.







AT ROLL-OUT—Sensational F-111, variable wing fighter for Air Force and Navy, was unveiled last week in ceremonies at General Dynamics' Fort Worth division. Roger Lewis, General Dynamics president, and Frank Davis, GD/FW president, hosted distinguished guests that included Secretary of Defense McNamara.

Standard Time Will Return to California

Clocks in California will be turned back an hour this coming Sunday (Oct. 25) as the state returns to standard time to regain the hour "lost" in the spring.

Standard time goes into effect at 2 a.m. the last Sunday in October under legislation adopted two years ago to extend Daylight Savings Time an extra month.

General Dynamics employees at all California plants and offsite bases will report to work by the new time on Monday, Oct. 26.

Jr. Scientists Use Little Joe

Two teen-age scientists placed high in recent national competition with their scale models of Little Joe II, faithful duplicates in miniature of Convair's launch vehicle being built for NASA's Apollo sub-orbital flight test program.

Gordon Mandell, 17, of Great Neck, N. Y., won the U. S. National Championship in model rocketry for overall points at the annual meet of the National Association of Rocketry held at NASA's Wallops Island testing station in Virginia. John Pollock of South Pasadena, Calif., placed fourth in a field of 30 contestants in scale competition at the same event.

(Mandell and his Little Joe II model were publicized in Life magazine's Sept. 25 issue in an article devoted to Space Age Youngsters.)

Both of the young men have been in correspondence with J. B. Hurt, Convair's Little Joe II program manager, for advice, specifications, and Little Joe II pictures. Pollock was a guest of Hurt's at the Oct. 8 luncheon of the Society of Automotive Engineers meeting in Los Angeles.

The man who has learned to disagree without being disagreeable has discovered the most valuable asset of a diplomat.

DEMPSEY OUTLINES SPACE TIMETABLE TO YEAR 2,000

Speaking to an academic convocation at University of Michigan earlier this month, where he received an honorary doctor of engineering degree, GD/Astronautics President J. R. Dempsey outlined a blueprint for the organized conquest of space.

J. R. Dempsey

In a timetable spanning 1965 (initial visits of Venus and Mercury) to the year 2,000 (exploration of Jupiter and Saturn), Dempsey proposed deep-space exploration to be carried out in progressive steps, each providing incrementally greater volumes of information.

The steps begin with instrumented fly-bys of the target planets, concluding with manned landings and finally, human colonies.

Dempsey advocated development of transportation systems for space exploration under a modular concept, with each vehicle expected to serve as an element of succeeding vehicular generations.

Defining astronautics as "man-directed activities whose ruling function is travel outside earth's atmosphere (100 nautical miles)," Dempsey said, "If science fiction can be described as real behavior in fantastic surroundings, then I suppose scientific reality in astronautics might be described as fantastic behavior in real surroundings."

He quoted English novelist Eden Phillpotts in concluding his remarks, saying, "We must remember that the universe is full of magical things, patiently waiting for our wits to grow sharper."

Dempsey, West Point graduate and WWII fighter pilot, earned a master's degree in aeronautical engineering from Michigan U. as a member of the first class of the Air Force post-graduate guided missile course.

He joined the company in 1953 and has managed Astronautics division since its inception.

10,000 Watch Roll-Out Of GD/FW's First F-111

The F-111—a fighter destined to open a "new dimension of flight" with its sweep-wing—rolled out at GD/Fort Worth Oct. 15, about two weeks ahead of schedule.

First flight for the two-man, all-weather plane is expected by year's end.

Upwards of 10,000—including employees on their lunch period, military and industry leaders, and the nation's press corps—were present.

The gray-and-white F-111 was towed to the speaker's platform north of the cavernous assembly building, then veteran flight-test pilots Dick Johnson and Val Prahl, aboard for the roll-out, swept the plane's wings once in their entirety.

The roll-out was narrated by Brig. Gen. J. L. Zoeckler, F-111 systems program director.

Other top military and industry leaders extolled the F-111 in brief speeches, both at the roll-out and at a briefing for press and special guests the evening before.

GD/FW President Frank W. Davis told newsmen and special guests at the briefing that the F-111 airframe is "essentially complete."

"All subsystems which must be installed for first flight are on hand," he said. "Substantially all parts necessary for installation of subsystems have been completed and are ready to install. Some have actually been installed."

Davis said the time remaining before first flight would be spent in installing and testing subsystems. Extensive instrumentation would also have to be installed and checked out.

No. 2 airplane, he said, would be available to share pre-first-flight ground testing.

He added that the first Navy F-111, due for delivery next spring, has begun to take shape in the fuselage and wing assembly fixtures.

Gen. B. A. Schriever, commander Air Force Systems Command, told the roll-out audience that the F-111 was a "quantum step forward in development of tactical air weapon systems."

"We expect to take advantage of the variable-sweep wing to select in flight those wing performance parameters which best fulfill each mission," he said.

In its various positions—from virtually straight out (16 degrees) to a tightly swept V (72.5 degrees)—the F-111 will be able to carry out a far wider spectrum of missions than any airplane before it.

With wings extended, the F-111 is ideal for short takeoff and landing, long endurance, heavy bomb loads, and long-range cruise.

With wings fully swept, the airplane takes on the appearance and flight characteristics of a supersonic fighter or bomber. It can operate above the speed of sound at either low or high altitude. This is also the folded condition for carrier handling.

The variable wing concept enables the F-111 to operate from small fields or aircraft carriers; penetrate to enemy targets or provide air defense at supersonic speeds; or fly intercontinental ranges without refueling or using auxiliary tanks.

"The world situation today, and in the foreseeable future, clearly calls for this kind of flexibility the F-111 promises," Davis said.

"We have known for years that an aircraft such as this with its variable sweep wing could open new dimensions of flight," Air Force Secretary Eugene M. Zuckert said at the roll-out.

"Our progress to date has been remarkable," he added. "We could ask for no more encouraging sign than this roll-out today, some two weeks ahead of schedule."

Roger Lewis, General Dynamics president, called the roll-out an "historic occasion—the birth of a new kind of airplane."

"We have beaten our own target date . . . despite the need to develop advanced technology and simultaneously to build a plane based upon that technology," Lewis said.

Lewis also spoke to Management Club members the evening before the roll-out at Ridglea Country Club.

"The Navy F-111, coupled with the Phoenix missile, will provide a weapon system to maintain air superiority whether operating from aircraft carriers or from fixed bases," said Secretary of the Navy Paul H. Nitze.

Secretary Nitze said the Navy F-111 would be capable of accompanying carrier attack aircraft out to their maximum range; long-range fighter interception; and individual strike missions.

"These aircraft will help to insure that our carrier weapons systems can fulfill their vital role in the 70s and 80s," he added.

Australian Ambassador John Keith Waller told the audience that the addition of two squadrons of F-111As would "add greatly" to his country's defense effort.

DOD Will Hear Cost Briefing

Department of Defense cost reduction and value engineering programs will be discussed by a panel of key personnel from the Office of the Secretary of Defense during a General Dynamics Value Control Seminar called for Nov. 4-6 at Washington, D.C.

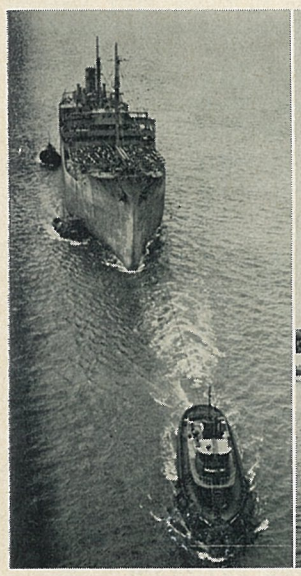
Panel members will be G. E. Fouch, Deputy Assistant Secretary of Defense, Col. A. Powers, and Col. J. Alston, of the Office of the Secretary of Defense.

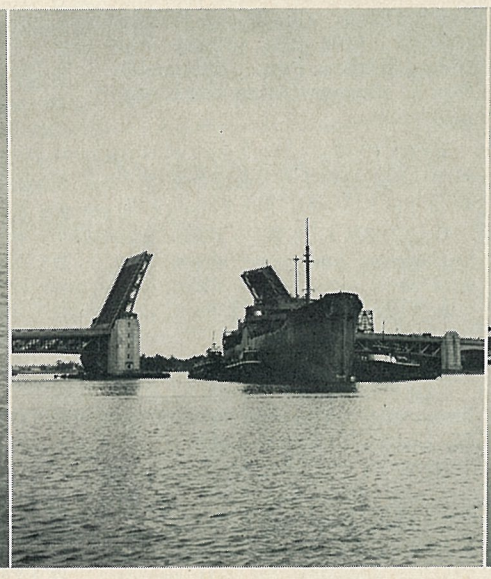
The DOD discussion will highlight the second day of the three-day meeting. J. N. Sowers, Corporate cost analyst, will outline GD cost reduction guidelines during the same session.

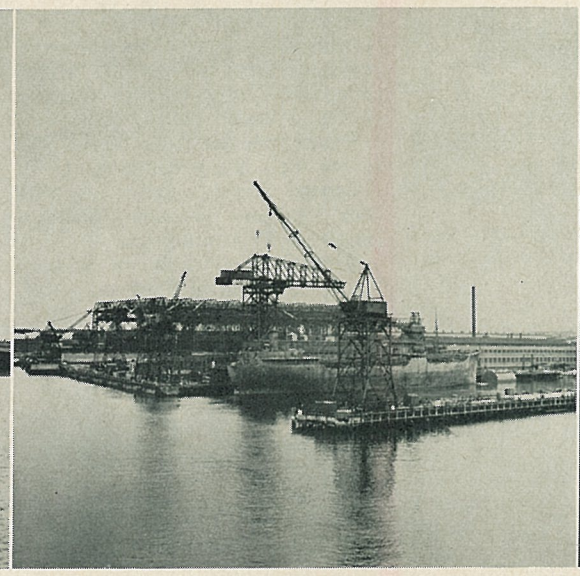
First-day agenda will be launched with a report on progress of GD value control activities by J. Y. McClure, Corporate director of reliability, quality control, value control, who will chair the seminar.

Sowers will conduct a company workshop session on cost reduction the closing day.

GD Value Control Panel members will take part in presentations and discussions dealing with various facets of value engineering and cost reduction during other sessions.







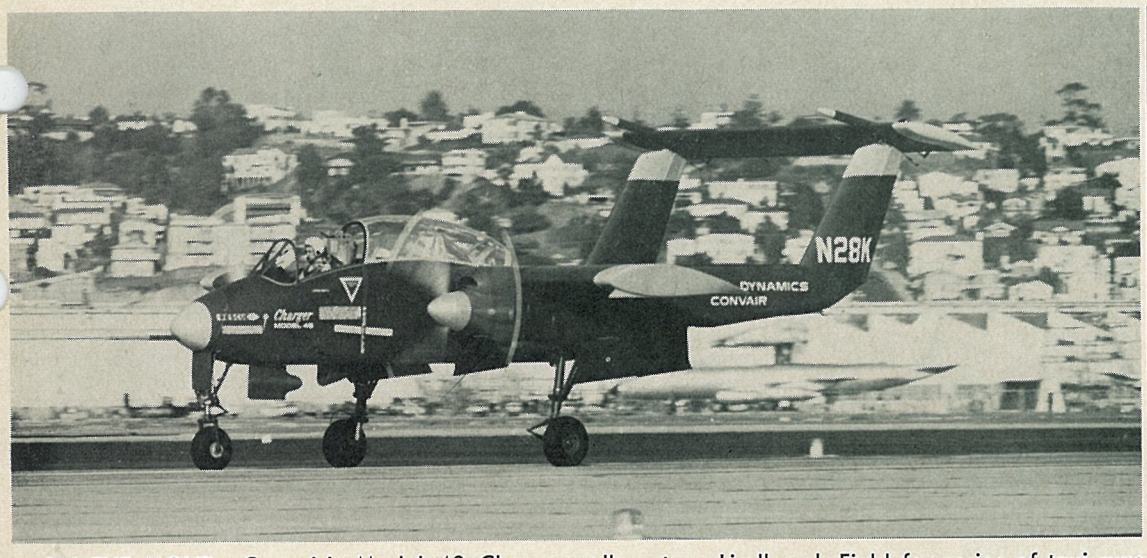
JOURNEY'S END — U.S. Navy tanker, Mission San Fernando, one of three destined for conversion to Range Instrumentation Ships for NASA's Apollo program, is pictured arriving at Electric Boat division's Quincy, Mass. yard. Three General Dynamics divisions are involved in $65 million conversion, Electronics, Electric Boat and Astronautics. Photo at far right shows dry dock in which task will be performed. Journey from Reserve Fleet at Ft. Eustis, Va., began Sept. 28, ended Oct. 5.

GD

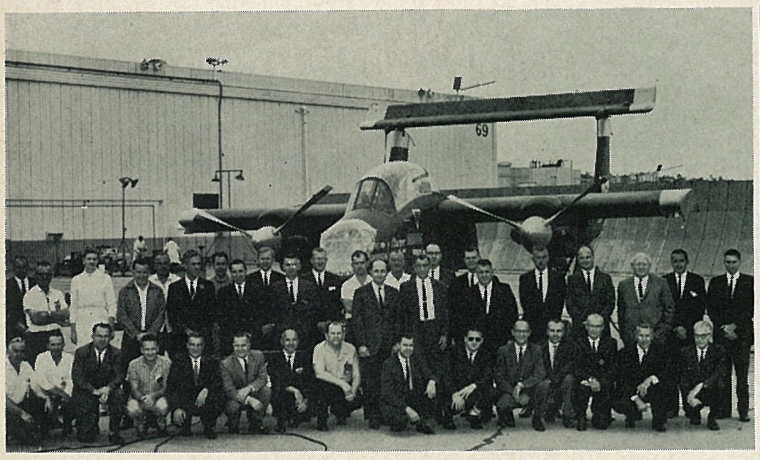
SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

Vol. 17, No. 23 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, November 4, 1964



ON THE MOVE—Convair's Model 48 Charger rolls out on Lindbergh Field for series of taxi runs leading to first flight of the division's COIN craft. First taxi runs were made Oct. 21.



THEY DID WORK—Key engineering and production personnel assigned to COIN program during six months it took to build prototype line up in front of Model 48 outside Bldg. 69 engineering prototype facility where plane was assembled.

Key Positions Assigned For GD/E at San Diego

D. C. Prim, formerly of GD/Astronautics, heads the newly-appointed administrative staff of the reorganized GD/Electronics facility at San Diego as manager, according to an announcement of top posts last week.

Prim came to GD/Electronics at SD from the Astro main plant where he served most recently as director of electronic programs.

Don Prim

F. J. Hickey, also formerly of Astro, has been named assistant to the GD/E manager. Hickey was former assistant to the Astro director of electronic programs.

B. G. Anderson, now GD/E chief engineer, and R. J. Jacobs, GD/E manager of advanced systems, also transferred from Astronautics. Anderson was Astro manager of trajectory measurement and control while Jacobs was manager of advanced system design at Astro's Kearny Mesa main plant.

Other staff appointments within GD/Electronics at SD are:

George W. Leesch, in charge of industrial relations; P. M. Jepson, manager of cost and price analysis; W. S. Stroud, manager of planning and control; J. W. Colvin, manager of marketing; D. C. Newlon, manager of operations; M. L. Tucker, manager of research and development; Kent Sinclair, manager of reliability and quality control.

All, except Leesch, are located on the second floor of Bldg. 51 at Plant 1. Industrial relations offices are adjacent to the lobby on the ground floor.

GD/Electronics' population at SD Plant 1 has been boosted to over 600 with the transfer of some 150 Astronautics people from Astro's former electronic programs department. They include all airborne and ground tracking design and advanced systems personnel assigned to the Azusa and Glotrac tracking systems. Electronic programs people remaining at Astro are those assigned to unmanned space vehicles, under L. V. Ottem.

Also included in the transfer are 15 Glotrac men now based at Pretoria, South Africa, where they are installing another Glotrac station in the global tracking network.

Some 25 former Astro people permanently based in the transponder research laboratory at the Eastern Test Range in Florida now report to GD/Electronics-SD.

An Apollo Instrumentation Ships project office, including 27 people, has been established on Bldg. 51's third floor. Project of-

(Continued on Page 2)

Model 240s Will Convert To Propjets

Convair division of General Dynamics and Rolls-Royce Limited, Derby, England, have jointly announced a propjet engine modernization program for Convair-Liner 240 twin-engine aircraft in service through the world.

At the same time, Trans-Texas Airways, Inc., Houston, Texas, announced that it will modernize its fleet of 25 Convair 240s with the Rolls-Royce Dart R.Da. 10 propjets. Ten Dart/Convair 240 modernization packages have already been ordered by Central Airlines, Inc., Fort Worth, Texas.

The basic propulsion package for the 240 airplane can also be adapted for installation on sister 340 and 440 Convair-Liners. A number of world airlines are now studying the advantages of converting their piston-powered Convair-Liners to Dart Propjet propulsion.

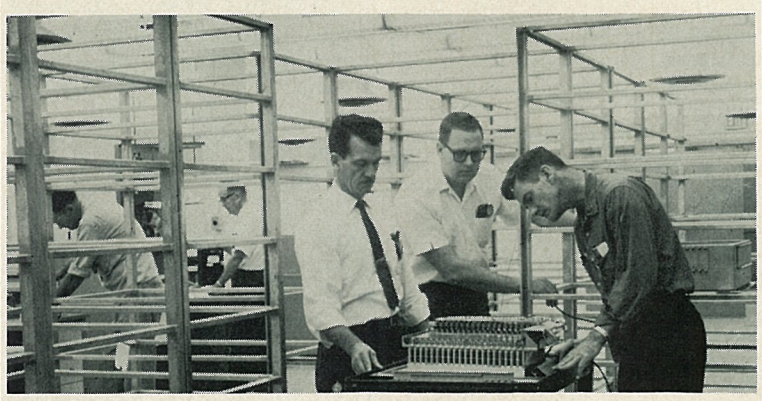
"The Dart engine is a perfect match for the Convair-Liner airframe," said J. H. Famme, president of Convair. "The modernized aircraft will be an excellent money maker for our airline customers. An airline will be able to reduce operating costs on a typical local service route by 22 cents per mile."

TEL-4 Work Gains Speed

In-house production work on GD/Convair's TEL-4 task picked up momentum this week at San Diego as the TEL-4 production force from Dept. 131 began operations on the lower floor of Bldg. 54.

The air-conditioned space, for-

(Continued on Page 2)



TEL-4 PRODUCTION AREA—Rene Collette, Dept. 131 assistant foreman; W. D. Johnson, instrumentation technician; M. L. Salefski, leadman, (foreground) examine sophisticated switch, one of 100 to be installed in racks around them for TEL-4 telemetering systems during Convair's on-site task now under way in Bldg. 54. In background are Ronald Steele, Dept. 6 engineering development technician, and A. A. Martin, Dept. 131 instrumentation technician.

Sales, Earnings Both Increase For Nine Months

Sales and earnings of General Dynamics Corporation for the nine months and the three months ending Sept. 30, 1964, continued to increase over the comparable periods of the year before, Roger Lewis, president, reported last month.

For the first nine months of 1964, sales were $1,163,048,000, compared with $1,036,460,000 for the first nine months of the prior year.

Consolidated net income of General Dynamics Corporation and subsidiaries for the nine months ended Sept. 30, 1964, came to $29,575,000, or $2.60 per common share after provision for dividends on the preference stock equivalent to 36 cents per common share.

During the first nine months of 1963 no provision for income tax was required on the Corporation's earnings due to the carry-forward of the 1961 loss. This year the Corporation is paying income tax on all its earnings. For purposes of comparison, 1963 earnings for the nine month period have been restated to include full provision for taxes. On this basis, net income for the first nine months of 1963 was $23,092,000, or $2.31 per common share, when no provision for preference dividends was required.

(Following is excerpted from a speech by Roger Lewis Oct. 15 before the New York Society of Security Analysts, discussing the Corporation's posture and major projects.)

"Today, all our divisions are operating profitably. Our earnings are improving steadily. . .

"Our current new order rate is higher than last year, which was, in turn, higher than the year before. Our total debt structure, well over $300 million at the end of 1961, has been slashed two-thirds. . ."

Stromberg-Carlson

Discussing commercial divisions first, Lewis said of Stromberg-Carlson: "Considerable growth is anticipated in our data processing equipment. The high speed printers and visual display units we produce as peripheral equipment to central computers are used for many things from production of instantaneous working drawings to monitoring physiological reactions of an astronaut in orbit. It has been estimated that the market for such peripheral equipment by 1970 will be at least as large as today's market for central computers. . ."

Liquid Carbonic

As to Liquid Carbonic, Lewis said that a trend of declining profit, even though sales were rising, has been reversed in the last year and a half by the division's new president, John A. Edwards. "All the signs at Liquid Carbonic are favorable and we expect the division to grow," he added.

Material Service

Regarding Material Service (building materials, coal and lime products), Lewis said that high construction level in the Chicago area may bring a record year in sales and profits in this part of the business. Despite a difficult year in the coal mining area, complicated by a serious fire, over-all 1964 will be a "very good year" for Material Service, he said.

Electro Dynamic

Electro Dynamic, the smallest division, is recovering remarkably from a fire that destroyed its plant last year. In addition to its products of low vibration motors, etc., "recently we have assigned to its jurisdiction the Dynapak line of advanced metal-forming equipment and a line of environment control products. Both . . . are relatively new but have already shown considerable market potential. . ."

Electronics

In discussing Electronics division, Lewis recalled the recent $65 million contract for modification and equipment of three ves-

(Continued on Page 3)

Lewis Gives His Views On General Outlook

(Roger Lewis concluded his remarks before the Society of Security Analysts with this frank and revealing discussion of the future.)

"Now a word about the outlook for the defense industry and the defense contractor. The two are not necessarily the same.

"The 'defense business' includes just about anyone who for one reason or another, at some time or another, has done some business with an agency of the Department of Defense. . . .

"I would say that a company which consistently has more than 65 per cent of its total business in defense work is a 'defense contractor' . . . a highly specialized producer. Weapon system development and production places premiums on the application of scientific knowledge, invention, quality, reliability, and above all, timeliness.

"To meet this requirement the defense contractor must have built a highly specialized organization in which engineers and scientists represent an average of 20 per cent of his total work force—compared with 3 or 4 per cent in other large industrial establishments.

"It takes many years to develop teams like this and the facilities

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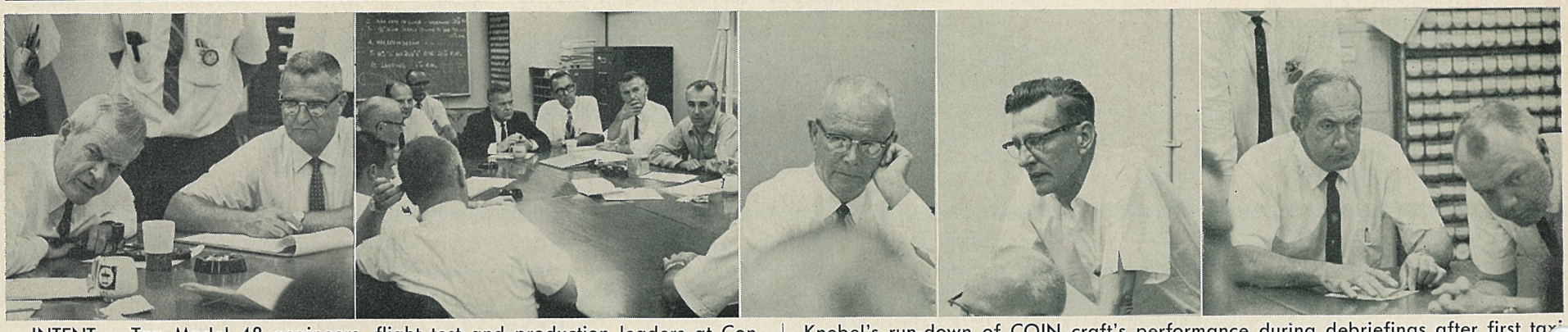

INTENT — Top Model 48 engineers, flight test and production leaders at Convair are snapped in absorbed attention as they listen to Chief Test Pilot John Knebel's run-down of COIN craft's performance during debriefings after first taxi runs prior to maiden flight of Convair's new counter-insurgency plane.

Key Positions Assigned For GD/E at San Diego

(Continued from Page 1)

fice activities for the conversion of World War II tanker ships to fully-equipped electronic tracking stations during manned moon shots under a $65 million contract from the Navy's Bureau of Ships is under direct cognizance of Lewis Emmerich, A.I.S. program director.

Emmerich will maintain an office in the GD/E San Diego facility in addition to his headquarters at GD/Electric Boat's Quincy Yard facility where actual conversion of the tankers will be accomplished. Preliminary work on the first of the three ships now is under way.

Heading the GD/E project office at San Diego are D. W. Putnam, manager of program integration and engineering; H. L. Copeland, manager of instrumentation electronics integration; J. E. Green, manager of program control and administration; D. L. Hill, manager of reliability and quality control. All transferred to GD/E from Astronautics.

Log Book Entries

GD/Convair men who received 25-year service emblems last month are, from left, N. W. Merrill, Dept. 131, H. G. Rexroad, Dept. 141, W. R. Eade, Dept. 131.

Service Emblems

CONVAIR

Service emblems due during the period Nov. 1 through Nov. 15.

Thirty-five-year: Dept. 6-25, A. J. Savard.

Twenty-five-year: Dept. 6-22, P. L. Brady: Dept. 34-7, C. R. Greenwood; Dept. 141, Joseph Arena; Dept. 401, J. T. Frichtel, D. M. Robinson, W. P. Upham.

Twenty-year: Dept. 6-05, K. P. Busch; Dept. 15-0, Florence H. Barnes; Dept. 102, I. T. Andrews, E. B. Stewart; Dept. 131, P. J. Aslin.

Fifteen-year: Dept. 100-1, Ora F. Carpenter; Dept. 115, A. A. Lockwood.

Ten-year: Dept. 6, F. G. Brickson, G. L. Getline, R. M. McGregor, J. C. O'Neill; Dept. 14-5, R. L. Brooks; Dept. 93-0, Catherine M. Malcangio.

ELECTRONICS

Twenty-five-year: Dept. 4075, R. J. Hogue.

Fifteen-year: Dept. 5082, C. R. Clagett.

Papers Presented

CONVAIR

Presenting papers at the 12th Annual West Coast Research Reserve Seminar in San Diego at the Oct. 27 session were:

CONOLLY—Alan C., senior hydrodynamics engineer. "Results of Recent Hydrofoil Research at GD/Convair.

DEWEY—David B. Jr., hydrodynamics engineer. "Stabilizing of Seaplanes with Vertical Floats."

DEVEREUX — Robert, oceanography project manager. "Development of a Long-Range Telemetering Buoy."

Personals

CONVAIR

To the friends and associates of our father, John M. Cooney, we extend our grateful appreciation for the kindnesses shown, and the individual and group expressions of sympathy. It made our sudden loss much easier to bear to know that we had the support and thoughts of his friends.

George and Bob Cooney and family.

Awards

CONVAIR

Employee Suggestion Awards approved for periods ending Oct. 16 and Oct. 23.

Dept. 15, F. D. Heflin and N. D. Jones (joint award), $7.50 each.

Dept. 42, S. Brown, $24.56.

Dept. 48, C. T. Allen (two awards), $10 each.

Dept. 102, F. M. Baxter (two awards), $11.90 and $130 final payment; R. A. Davis, $6; F. D. Slavens, $10.

Dept. 119, V. L. McKerrihan and B. F. Armas (joint award), $9 each; C. H. Stringfield and L. O. Smith Sr. (joint award), $5 each; D. R. Wilson, $12.

Dept. 131, P. Erumo, $10; J. A. Gliebe and W. H. Crouch (joint award) $5 each; D. P. Weaver, $10.

Cost Improvement Proposals approved for same periods.

Dept. 6, J. B. Harter.
Dept. 15, L. N. Kenyon.
Dept. 34, G. D. Carroll.
Dept. 93, P. D. Thomas.
Dept. 115, W. J. Durflinger (two proposals); S. T. Krebs; S. Pensiul.
Dept. 119, L. W. Stamper (two proposals).
Dept. 400, M. M. Hill.

Rider-Driver

CONVAIR

RIDE WANTED—from area of Robinson and University Ave. Hours 8 to 4:30 p.m. Particularly interested in transportation to work if round-trip not available. Helen Sunblade, ext. 673.

Retirements

CONVAIR

BRADSHAW — James H., Dept. 171. Seniority date June 13, 1940, retired Aug. 21.

DUPONT—Amy S., Dept. 25. Seniority date Nov. 2, 1951, retired Sept. 30.

HULL—Albert G., Dept. 6. Seniority date March 13, 1942, retired Sept. 30.

POE—Queena Q., Dept. 171. Seniority date Oct. 27, 1950, retired Aug. 18.

General Dynamics NEWS

Published by General Dynamics Corporation, One Rockefeller Plaza, New York, N. Y. 10020; with editorial headquarters at 3302 Pacific Highway, San Diego, Calif. 92112, P.O. Box 1950, telephone 296-6611, ext. 1071. Logan Jenkins, editor-in-chief.

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Fort Worth Editorial Offices, between Cols. 71-C and 71-D, Assbly. Bldg., GD/Fort Worth, Mail Zone T-63, P.O. Box 748, Fort Worth, Texas 76101. Telephone PErshing 2-4811, ext. 2961. Staff: Dave Lewis, editor; Mary Beck.

Pomona Editorial Offices, Room 119, Bldg. 1, GD/Pomona, Mail Zone 3-13, P.O. Box 1011, Pomona, Calif. Telephone, NAtional 9-5111, ext. 6226-5279. Staff: Glenn Kehr, editor; Carol Colbert. Daingerfield news office, P.O. Box 947, Daingerfield, Texas. Telephone Lone Star, Texas, 2211, ext. 424.

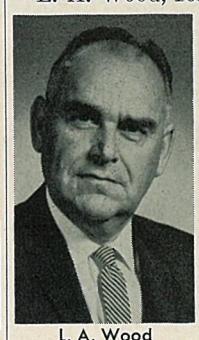
* * *

Affiliated editions of General Dynamics NEWS are published in Rochester, N. Y., covering GD/Electronics and Stromberg-Carlson, editorial offices, 100 Carlson Road, HUbbard 2-2200, ext. 2555. Fred E. Voss, editor; and at Groton, Conn., covering GD/Electric Boat, editorial offices at Groton, HIlltop 5-4321, ext. 300 and 513, Joseph Tracey, editor.

L. A. Wood Will Head Operations, Material For S-C at San Diego

All material and operations functions at Stromberg-Carlson's San Diego facility have been consolidated under a single manager.

L. A. Wood, formerly in charge of material, has been named manager of operations to head up the combined areas of responsibility.



L. A. Wood

In addition to the material sections of purchasing, material operations, traffic, he assumes functions previously under J. H. Thompson, former director of operations, who now is on special assignment. These include manufacturing, manufacturing engineering, production control, scheduling, plant engineering.

Wood joined the company at Convair in 1953 as senior buyer. He held positions of chief of subcontracting, general purchasing agent, procurement manager, and was project manager of transfer task before transferring to GD/Electronics at SD in 1962 as manager of material.

GREEN SUCCEEDS E. W. FEDDERSEN

Eugene D. Green has been named acting chief of manufacturing research and development at Convair, replacing E. W. Feddersen who has accepted a position in the New York Corporate headquarters.

Green reports to W. R. Bruce, Convair director of operations.

He first joined Convair in 1942 and was general foreman and assistant superintendent in tooling before leaving the company for a few years. He returned in 1959 as manufacturing development engineer and was senior engineer in applied manufacturing research before his current assignment.

Feddersen, former Corporate director of manufacturing development, had headed Convair's manufacturing research and development activities during the last year.

Anniversary Meal Draws 'Eager Eaters'

A record total of 1,100 meals were served Convair, GD/E, and Stromberg-Carlson people who lined up at the Convair main cafeteria on Pacific Highway to celebrate the Prophet Co.'s 45th anniversary with a 45-cent turkey dinner.

Some 300 pounds of turkey were consumed at the Oct. 22 luncheon, said Jack Malone, manager of the Convair cafeteria.

NASA CERTIFICATION CLASS CONDUCTED

Five Convair people and one from Kinetics Corp. went through a 40-hour soldering course for NASA certification in Convair's soldering school last week. Attending were Anna Cunnion, Joseph Kelly, Carmelita Slack of Dept. 131; Lloyd Quick and Bertha Ross of Dept. 116; and Jack Green of Kinetics. Wayne Turner of Convair educational services instructed.

Memories of 65 Years Service To Accompany Two Retirees

Two long-time Convair men, William Waite and Nicholas Maisheff, both of Dept. 101, leave the company this month after a combined 65 years of service.

Waite, who trained the first women ever hired by Convair for production work, has spent half a century in industry. In 1915, as a lad of 15 he started his apprenticeship as a tool maker with the Sage Co. of London, England. He recalls that at that time tool makers made the dies and went on to make their own parts through the entire process.

He came to the United States in 1928 and after a couple of years at Pierce-Arrow and Curtiss Aircraft, he joined Thomas Morse (later absorbed into Consolidated Aircraft) as a sheet metal worker. He made the move with the company to San Diego in 1935.

As foreman of electric bench during the war years he took in hand the training of the first women assigned to production areas in 1941. He remembers that the swinging doors on the mezzanine of Bldg. 3 swung off their hinges from the parade of men passing in and out for a glimpse of women at work!

Waite has been a prolific submitter of CIPs over the years with dozens approved and installed.

Now, he and his wife are deep in plans for a trip around the world. He retired last Friday.

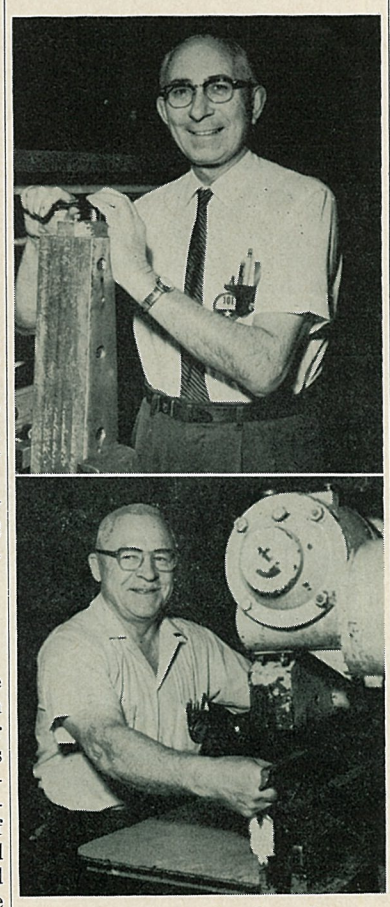
Maisheff came to Convair by a circuitous route that stretches back to the Russian revolution of 1917. Son of an upper-class merchant of Sarapul in the Ural Mt. region, he served as a lieutenant with the White Russian Army in South Siberia and Mongolia during the struggle against the Bolsheviks.

Although only 18 years old at the time, Maisheff led his 55 men on guerrilla strikes far inside Bolshevik lines, sometimes as much as 200 miles, to cut off communications and supplies.

In 1921 Maisheff escaped into China and settled for a couple of years in Harbin, Manchuria, working on a Russian newspaper. He and his wife, whom he married in Harbin, came to the United States in 1923.

He worked in the Seattle area while he learned English and joined Consolidated at San Diego in 1935.

He and his wife plan a trip to the East Coast, a part of the United States they have never visited, after his retirement later this month.



Bill Waite (top) and Nick Maisheff.

TEL-4 Work Gains Speed

(Continued from Page 1)

merly occupied by the analog computer, has been converted to a clean manufacturing area specifically for TEL-4 assembly and test of Convair-furnished equipment to go into the Merritt Island, Fla., Central Telemetry Building for monitoring launch operations at the Air Force Eastern Test Range.

A peak number of 30 mechanical, electrical, and electronic workers will be assigned to TEL-4 production by the first of the year under responsibility of C. S. Strand, Dept. 131 foreman. Rene Collette is assistant foreman and M. L. Salefski, leadman.

Office space immediately within the Bldg. 54 entrance will be occupied by Collette, Salefski, liaison engineers, and planners on the project. Assembly will be done in the large main air-conditioned room. A stockroom has been set up at the west end and a small equipment shop for detailed work at the east end of the main production area.

Convair will provide control room equipment for the Merritt Island building. This includes a master controller console and four launch operator consoles.

Other components furnished by Convair will be an auxiliary station; remote patch control unit to tie together the master controller console, launch operators consoles, master display board and remote patch systems; a remote recorder control; 210 recorder status boards—detailed panels to provide visual display of remotely controlled recorder assignments; and two DC power cabinets.

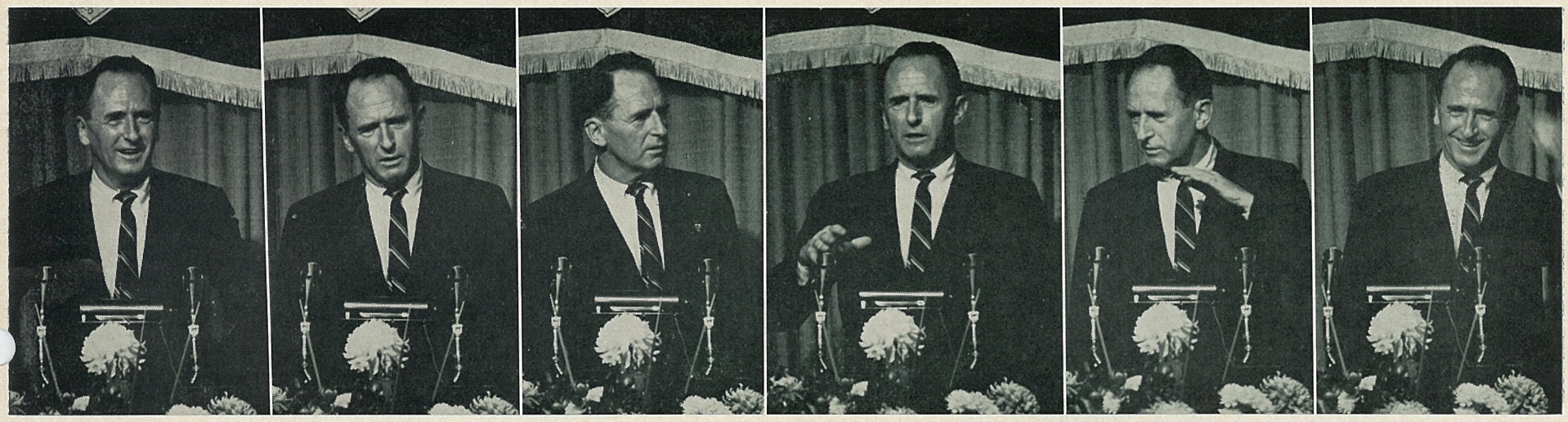
One of the larger tasks at Convair will be the assembly and checkout of switching for the video remote patch system. Ten large racks of instrumentation will be involved.

Production work at Convair will extend over the next several months, until mid-1965.

Jr. Foreign Officers Tour Convair Plant

A group of 17 junior foreign officers representing seven countries toured GD/Convair production areas last month as part of an orientation program. They are currently attending an amphibious planning course at the Naval Amphibious Base on Coronado Island.

They were accompanied by members of the base course staff, Cdr. James Williams, Lt.(jg) Charles Davies, and Lt. (jg) John Gould.



CANDID VIEWS — Roger Lewis, General Dynamics president, addressed GD/Fort Worth Management Club last month while in area for roll-out of F-111. He discussed business environment and called attention to GD's broad spectrum of technology.—Photos by Dick Magness.

Affairs of Each GD Division Touched Upon by Roger Lewis

(Continued from Page 1)

sels for the Apollo program, in which Astronautics, S-C and Electric Boat also are involved.

"I think this particular contract may be an ideal example of the possibilities inherent in our company-wide range of capabilities," Lewis commented. "I believe the decisive factor was the Corporation's ability to deliver, as a single package, the wide variety of skills and facilities required for the job."

Electric Boat

Reporting regarding Electric Boat division, Lewis said that although the nuclear submarine program is expected to taper off, "this does not dismay us." In addition to the space-tracking ships, E-B has been low bidder for three large cargo ships and has the facilities and experience to perform the growing amount of modification and overhaul on nuclear subs. With "probably the most extensive research and development team in maritime history," E-B has the capability "to develop any advanced ship, nuclear or conventional, submarine or surface."

Pomona

Lewis described Pomona division programs (Terrier, Tartar, Redeye, Mauler) and said "our great confidence in the future of this division is reflected in our decision to build, with company funds, a new engineering facility adjacent to the Navy-owned facility at Pomona."

Astronautics

Regarding Astronautics division, Lewis sketched the outstanding career of Atlas, current efforts to improve versatility and payload, and successful test flights of Centaur.

"The short-range future of this division is clouded by the general uncertainty about the nation's space plans. The ballistic missile program is substantially complete. Right now . . . there is no clear indication as to whether a requirement exists for a military role in space or what, if anything, the Government will decide to do about it.

"Our own convictions are clear. We believe that space, particularly near-earth-orbit space, is important to national security and that ultimately a military space program is likely. We also believe that the key to success of such a program will be more in the man than in the machine. We are devoting substantial funds to facilities and research dedicated to 'life science'—the problems of sustaining human life for long periods in either near-earth-orbit or deep space."

Lewis reminded that Astronautics and Space Technology Laboratory of Thompson Ramo Wooldridge, Inc. are teaming to submit a proposal for a manned orbiting laboratory.

Fort Worth

As to the aircraft divisions, Lewis said: "We have great hopes that the F-111 program will be large and will extend over a long period of time. Right now, we have a contract to deliver 23 prototype aircraft. . ."

He said the further life of the program and the ultimate quantities of aircraft involved will depend on the quality and success of the prototype effort, and upon future requirements of the Government.

Convair

Lewis reported that Convair division, "which bore the full weight of our difficulties with the commercial jet transport program, has shown remarkable vitality. Watching every penny while completing that program, we have been able to retain a nucleus of highly trained engineers and mechanics, men whose average tenure with the company is more than 18 years."

He mentioned Convair's C-141 subcontract, and design and manufacture of the utility spacecraft, Little Joe II, but added: "More important, this group has shown initiative and imagination in finding new programs.

"First, there is the Dart Convair program. Availability of the Rolls Royce Dart engine at increased power ratings makes it possible to re-engine existing fleets of 240/340/440 twin engine Convair-Liners resulting in an airplane . . . 40 miles an hour faster and with greatly improved maintenance and operating costs relative to engine service.

"We believe there will be a substantial market for modification kits to convert these airplanes. . .

"Convair currently employs about 3,000 people and is operating at a profit. You can't keep good people down."

Canadair

Referring to Canadair, an outstanding producer of high performance military aircraft, Lewis said the trend is toward fewer numbers of more complex weapons, tailored more specifically to Canadian requirements.

"The Canadian government is currently considering the use of tactical fighters of U. S. design, and Canadair is bidding for the second-source production contract. Such an order would be a large one. . ."

General Atomic

Lewis called General Atomic division "one of our most exciting operations," working closely with the AEC, with an ultimate market of advanced nuclear power plants for investor-owned electric utilities.

GD/Astro's Fager To Present Paper

John A. Fager of GD/Astronautics is presenting a paper at the Third Manned Space Flight Meeting co-sponsored by the American Institute of Aeronautics and Astronautics and National Aeronautics and Space Administration in Houston, Texas, this week.

Fager, an advanced systems group engineer in Astro's Manned Orbiting Laboratory structures section, will talk on "Integrated Non-Re-Entry Manned Spacecraft Hull Design."

Bill McNew Earns Commander Award

Bill G. McNew, GD/Astronautics resident manager at Norton AFB, has been awarded the Air Force Ballistic Systems Division Commander's Award for his efforts on behalf of activating Atlas operational facilities.

Making the presentation was Brig. Gen. H. J. Sands Jr., BSD commander at Norton.

The award citation said: "Because of his intimate knowledge of Air Force procurement and configuration control standards and policies, as well as his familiarity with General Dynamics procedures, he was instrumental in expediting the preparation and transmittal of engineering change action through Ballistic Systems Division control points with a high rate of efficiency."

NASA Will Fly 990 Laboratory

GD/Convair will supply a Convair 990 jetliner to National Aeronautics and Space Administration to be used as a flying laboratory for space and aeronautics research.

Negotiations now are under way for the lease of Convair's 990 prototype Model 30-A5 with an option to buy at a price expected to be between $2½ to $3 million. Delivery will probably be in about six months.

The stripped-down plane will be modified at Convair to NASA's needs. Modification will include special viewing ports in the fuselage, special gear for the installation of propulsion units, electronic gear, and aerodynamic refinements and instrumentation.

The plane is being obtained for the program of the Aeronautical Research Division of NASA's Office of Advanced Research and Technology. Scientists will use the jet for studies of vertical and short takeoff and landing craft as well as supersonic transport flight research.

Since Convair's 990 is capable of altitudes of over 40,000 feet, NASA spokesmen say that it will be useful for astrophysical research and upper-air investigations conducted by NASA's Office of Space Science and Applications.

The 990 will be based at NASA's Ames Research Center, Mountain View, Calif., and operated from the adjacent Moffett Field airport.

Roger Lewis New Stanford Trustee

Roger Lewis, president of General Dynamics Corporation, has been elected to the Stanford University Board of Trustees.

A member of the class of '34, Lewis served on the National Executive Committee of the University's $100 million PACE Program, and is a member of the Advisory Council of the Graduate School of Business. Lewis majored in economics at Stanford, was a varsity player in soccer and rugby and a member of Sigma Nu fraternity.

Lewis Gives His Views On General Outlook

(Continued from Page 1)

to support them. Once dispersed, it would take an unacceptably long time to recreate them, even if it were possible.

"Regardless of changes in defense spending, such highly specialized producers cannot convert to commercial business unless at the same time they are prepared to strip themselves of those special capabilities in personnel and facilities.

"General Dynamics is a defense contractor within this definition. Despite our growing commercial business, 75 per cent of our total is for defense. We could not convert this science-and-technology-oriented capability on a large scale without first deciding to leave the defense field entirely. I assure you we have no intention of doing that.

* * *

"Given this, what is the outlook?

"In the first place, we must be prepared for some decline in expenditures for military hardware . . .

"Second, there seems a clear trend toward fewer types of new weapons and procurement in smaller numbers . . . The new weapons are so complex, so expensive to develop, but also, more important, so effective militarily, that redundancy in procurement would probably be both unnecessary and wasteful . . . The F-111 is probably an excellent example of this trend . . . The DOD has undertaken, I believe for the first time, the development of a piece of hardware designed not only for use by two different services, but also for use in two different military roles. I expect that we will see much more of this.

"Third, programs will be more thoroughly defined before contract awards are let; procurement techniques will, in all probability, become more stringent. Higher standards of quality and performance will be expected along with lower costs . . .

"Fourth, competition is going to be intense by any standards. The marginal producers will soon be facing the hard choice of being in or out of this business . . .

* * *

"But this is not the whole story.

"We plan as best we can, but change is the constant.

"History makes it clear that many things can upset, overnight, the most careful analyses and preparation: a technological breakthrough that obsoletes important weapons; the sudden rise of a new demagogue; the international maneuvering that always has inherent within it the threat of new political alliances against us. It has always been this way.

"What is different now is that this is the thermo-nuclear age. Wars can start in minutes and be over in days, and the United States is the principal protector of the peace.

"There can be no question about the need for the U.S. to maintain its military strength; nor is there any question that this military strength must rely on an inventory of the most modern weapon systems that a fast moving technology can develop.

"The only question is—where does the specific responsibility lie to maintain the necessary capabilities?

"To my mind the defense industry, privately owned though it is, does have a major responsibility in this area.

"In the Soviet Union, technical and production resources can be massed within a monolithic structure under rigid political control and management.

"Under our system of democratic government—and its frequency of change among policy-making officials—I can see no better way than through the voluntary partnership of private industry and government to build and hold in place the technical organizations and capabilities required to stay abreast of accelerating technology and translate that into weapons in the shortest possible time.

"In some cases in the past, crash programs based on technology developed within government agencies and associated universities have met certain special requirements. I do not believe that we can ever again rely on crash programs. Constant advanced development must be going on at all times and in many fields.

"The very fact of hard competition within the industry helps assure better weaponry, better defense, for the U. S.

"If, as businessmen, we find these conditions somewhat hard, well, that is the fact of life of this industry and one which we are accustomed to.

"If my appraisal is correct, then General Dynamics is in a good position for this new era. As a basic defense contractor, we have the talent and the facilities required to do the job. We are working very hard to improve our organization and our facilities even further.

"In any case, we have a deep feeling of responsibility to the defense of this nation. We are confident that if we do our best, both in operating the company and in meeting the critical national requirements, we will continue to be asked to take on the new, the difficult and the large assignments which we feel certain the security of the nation will require."

DIGGERS — Astro Junior Rifleers, Astro and Convair sons and daughters, put in hot stretch of ditch digging at work party to lay 50-ft. target line at CRA gun range. Adult helpers in foreground (from right) are Lee Crum, executive officer; Don Moffat, squad instructor; Bob Andrews, ARA Rifle commissioner; Joe Kersey, platoon instructor for Juniors.

Junior Rifleers Pitch in, Dig New Target Line at Gillespie

Astro Junior Rifleers rolled up their sleeves and pitched in, with the help of a dozen or so instructors and parents, to lay a new target line at the CRA gun range at Gillespie Field last month.

The 50-ft. line is specified by National Rifle Association as a qualifying distance for beginning shooters before they advance to greater distances.

Some 30 Juniors turned to at the work party Oct. 17 to help dig the foot wide and foot deep ditch across the width of the range, about 125 feet, and lay the concrete blocks to hold the target frames. CRA furnished the materials.

It took about four hours of strong-arm labor to finish the job, with time out at noon for a sack lunch.

Those still able to move, or at least lie down, competed in a luck trophy shoot in prone position. Ken Lemley, Shelley McGregor, and Chuck Pinnell had top scores, in that order.

The same day, before the digging began, Chief Instructor Martin Miller initiated his stepped-up instruction program in small arms weaponry for both the young Rifleers and their adult instructors and staff members. Al Schindler is instructor of two classes, one for the Junior Rifleers and the other for the grown-ups, to be given at the twice-a-month club shoots. Briefings will cover care and cleaning of firearms, proper handling of weapons, different firing positions, sighting.

At the first meeting 25 adults signed for the 8 to 10-week course.

Miller said that all instruction will be standardized so that coaching on the line will carry out the same basic fundamentals as the formal sessions. Parents are welcome to enter the training.

QC Society to Meet; Dinner Tickets $2.50

General Dynamics members of San Diego Section of American Society for Quality Control may purchase tickets now for the Nov. 9 dinner meeting at Bronze Room and Restaurant, La Mesa.

Ray Fredsti, manager of quality assurance at Ryan Electronics, will be main speaker on "Incoming Material Verification Without Duplication."

Social hour is at 6 p.m., followed by roast beef dinner at 6:30 and the program at 8. Price is $2.50, including tax and tip.

Reservations may be made through: Convair—L. C. Stuckey, ext. 646, Plant 1; Astro—Paul Gelles, ext. 4110, Plant 71; J. H. Godwin, ext. 1509, Plant 19; GD/Electronics—Kent Sinclair, ext. 1851, Plant 1; Stromberg-Carlson—Ivan Kemper, ext. 36, Plant 2.

GD/E, S-C Luncheon Planned For Nov. 12

GD/Electronics and Stromberg-Carlson wives will gather for their monthly luncheon next Thursday (Nov. 12) in the Aqua Room of Town and Country Hotel.

All wives of GD/E and S-C employees at San Diego facilities are invited to attend.

Social hour begins at noon with luncheon served at 12:45 p.m. Price, including tax and tip, is $2.30 each.

Reservations must be made by Nov. 9 by calling either of the co-hostesses: Mrs. R. E. McClure, 278-8041; or Mrs. D. J. Bergstrom, 277-8856.

Astro Selects Subcontractors

General Dynamics/Astronautics last week named subcontractors for nine major systems and units of the nation's first long term life support system for manned spacecraft.

Astro is developing this prototype system for National Aeronautics and Space Administration's Langley Research Center. It is being designed to support four astronauts in space for one year, with resupply every 90 days. All elements of the system are designed for zero gravity operation.

Astro's life sciences section is heading the effort.

Hamilton Standard Division, United Aircraft Corp., will provide a CO_2 concentrator as well as a water recovery unit. The Electromechanical Division, Thompson Ramo Wooldridge, Inc., will supply a carbon dioxide reduction unit and a cabin air water separator. General American Transportation Corporation's MRD Division will supply a catalytic burner and a waste management system.

Missile and Space Division, General Electric Co., will provide a water electrolysis unit. Electric Boat Division, General Dynamics Corporation, will build a filtration water recovery system. And the Systems Division, Whirlpool Corp., will supply a food management system.

Plans call for extensive functional and performance testing of various integrated systems at Astronautics. Then the life support system will be shipped to Langley Research Center for continued research and extended manned testing.

Blakey Assigned To MOL Effort

Personnel assignments involving three GD/Astronautics veterans were announced late last month by President J. R. Dempsey.

The MOL proposal effort was strengthened by full-time assignment of C. W. Blakey, director of contracts, to the team headed by Mort Rosenbaum, vice president and program director — manned space systems. F. S. Chambers will serve as director of contracts (acting) for the duration of Blakey's assignment.

E. J. Huntsman, previously manager of activation and support for the Atlas "F" Update program, has been named to the new post of Plant 19 administrator, monitoring all GD/Astro operations at that facility and reporting to Work Manager W. L. Van Horn.

In another move, Orison Wade, with General Dynamics since 1948, was assigned responsibility for GD/Astro's participation in the Apollo Instrumentation Ships program, reporting to R. C. Sebold, vice president—research, development and engineering.

SEPTEMBER HONORS—Mike Alianelli, Dept. 780-1, right, was presented plaque by B. A. Mendoza, left, as Management Club Man-of-the-Month for September at last meeting of Astro Club. Alianelli was cited for achievement in Cost Improvement Proposal (CIP) program with idea which will save Astro some $13,000 per year.

Dances Slated For Young Set

Two dances with headline attractions for the younger set will be held this month by ARA Teen Club at ARA Clubhouse east of GD/Astro main plant on Kearny Mesa.

The events — and club memberships — are open to all General Dynamics teen-agers, with applications, to be completed by parents or guardians, available at employee services offices.

A dance Nov. 7, from 7:30 to 11:30 p.m., features a double billing. Both "Lee and the Crowns" and "The Penguins" will entertain. School clothes are appropriate dress. Admission is 50 cents for members, 75 cents for guests.

On Nov. 14, four bands will play for a special benefit dance. Admission will be $1 per person with proceeds going to a scholarship fund to aid a needy teenager.

Booked for the evening are "Little Joe and The Mustangs," "The Executives," "The Dimensions," and "The Centuries."

CRA-ARA to Sponsor Tijuana Border Tours

A day below the border to view highlights of Tijuana is in store for General Dynamics people in San Diego through CRA-ARA sponsorship.

Two separate tours will be conducted by James Hardison of Convair Dept. 15 and local Spanish instructor, to accommodate students of the CRA-ARA summer Spanish course and all others interested. First tour will be Saturday, Nov. 21; second on Dec. 5.

Reservations must be made before Nov. 14 by calling Hardison at his home phone, 276-5805.

Price for transportation, dinner, admissions is $11 per person.

Buses leave the Conference Bldg. parking lot in Balboa Park at 1 p.m. and return there at 1 a.m. There is plenty of parking space to leave private cars.

Along the tour route visitors will see the new border entrance, post office, money exchange, cathedral, and exclusive residential areas. They will visit the tortilla factory, pastry bakery, and De Las Americas—new family indoor sports center.

Dinner will be at the Fronton Palacio Cafe. During the evening the groups will view jai alai games and wind up the day at the Folies Bergere.

BEGINNING SPANISH CLASS COMMENCES

A Saturday morning class in beginning Spanish is open now to all General Dynamics people at Mission Bay High School. Instructor is James Hardison of Convair service parts and Spanish instructor in the city adult education program. Class hours are 8:30 to 11:30 a.m. Registration may be made at the sessions in Room 223 of the high school on Grand Ave. in Pacific Beach.

Salvage Schedule Set For November

Salvage yard schedule for the month of November at both Convair and Astro sites is:

Convair—Nov. 7, 21.
Astro—Nov. 14, 28.

Astro Notes To Entertain

A few open dates remain on the performance calendar of Astro Notes, ARA choral group, and engagements will be accepted during November, January and February for appearances before recreation groups or civic organizations.

The group still accepts new members from among any General Dynamics employees. Prospective "songsters" are welcomed at rehearsals each Monday, 7:30 to 9 p.m. at ARA Clubhouse. No "tryouts" are held, and the ability to read music is not a requisite.

Astro Notes schedules at least one social event monthly, such as the Halloween party Oct. 30. This month a Thanksgiving potluck is planned.

Club engagements are booked by Walt Miner, ext. 1111, or Jim Pate, ext. 3034, at GD/Astro Plant 71. They will also supply additional information on the group, as will Jo Anne Bray, GD/Convair Plant 1, ext. 1900.

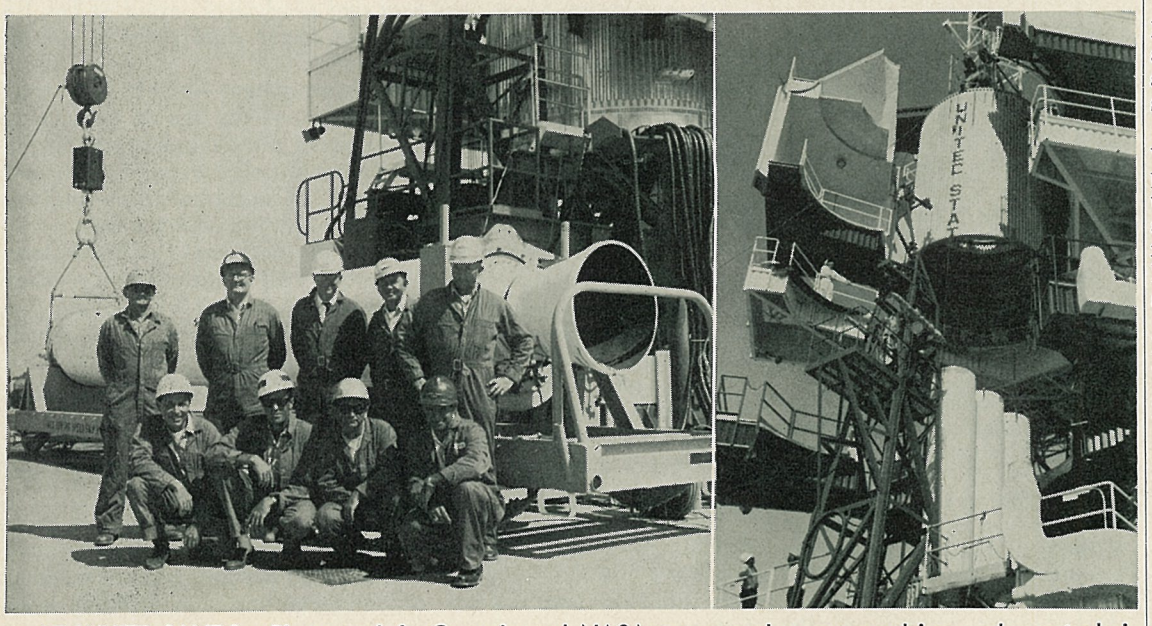
Trans Canada Air Engineer to Speak

Members of the San Diego Section, Society of Automotive Engineers, will hear John T. Dyment, Trans-Canada Air Lines chief engineer, speak on the status of supersonic transport programs tomorrow night (Nov. 5).

The dinner meeting will be at Stardust Motor Hotel in Mission Valley. Social hour is at 6 p.m.; dinner at 7.

Members' charge is $3.50 and guest tickets are $4.

Reservations may be made through plant representatives: Convair—Ernie Kotnik, ext. 1125, Plant 1; Astronautics — Allen Haury, ext. 4318, or Jim Bushnell, ext. 3681, both at Plant 71; Chuck Botts, ext. 2025, Plant 19.



AT WHITE SANDS—Photo at left, Convair and NASA group make up propulsion and pyrotechnic crew for installation of 23,000-lb. ALGOL motor (background) in Convair's Little Joe II launch vehicle now being readied at White Sands Missile Range, N.M., for firing later this year. From left (back row): John Burgreen, Convair technician; Don Anderson, Convair engineer; Dick Sauders, NASA engineer; Ed Kerfeld and Norman Merrill, Convair technicians. Kneeling are Jim Cain, NASA inspector; Duncan Guest and Obed Ray, Convair technicians; Gus Gagliardo, Convair inspector. Photo at right, Apollo Service Module adapter section sits in place above beginnings of Little Joe II propulsion cluster gantry. Little Joe II will provide power for Manned Spacecraft Center flight test of Apollo launch escape system later this year—NASA photo.

S-C DEMONSTRATION—Army and Univac officials see typical Army War Room-type program demonstrated on S-C 1090 computer display console during recent visit to Stromberg-Carlson's San Diego plant.

Data Processing Equipment Shown to Army and Univac

High-speed data processing equipment of Stromberg-Carlson's San Diego facility was demonstrated last week to a group of Army and Univac officials during a one-day visit.

On display was the Army War Room-type direct view console—the S-C 1090 rear window computor display console, the S-C 3070 high-speed printer, and the S-C 4020 computer recorder.

Army visitors, all from Washington, D. C., were W. S. Montgomery, attached to the Office of Deputy Chief of Staff of Military Operations as project officer of Army War Room systems, Lt. Col. W. H. Brinnon, Majors J. H. Fette and J. G. Peura.

Univac representatives were Ralph Hileman, program manager for the Army War Room contract; Jack Mann, project manager; Ed Nelson, engineering subcontracts, all from St. Paul, Minn.; James Warrington and Ted White of the San Diego systems for Univac.

C. V. Shannon, S-C manager at SD, welcomed guests. J. H. Gurley, Army requirements engineer, coordinated arrangements and gave the general briefing.

S-C men participating in demonstrations included Ron McClure, Jerry Schmidt, Tom Bankhead, Art Casey, R. E. Thoman, S. M. Chesler.

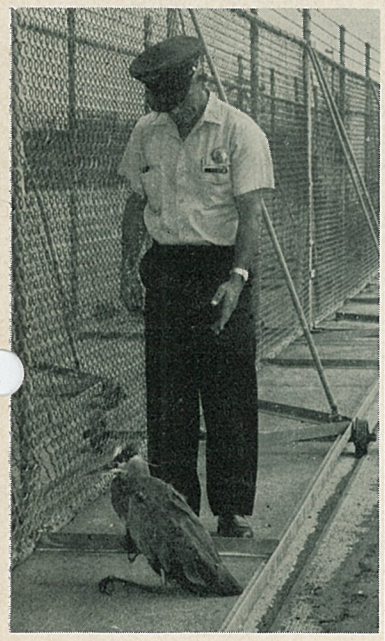
S-C and Univac System Shown

Stromberg-Carlson division of General Dynamics and Sperry Rand Corporation's Univac division joined in demonstration of a new information system at the Fall Joint Computer Conference at San Diego last week.

The system, which records computer generated data directly on microfilm at high speeds, combined Stromberg-Carlson's new S-C 4400 Document Recorder and the Univac 1050 Computer. In the live demonstration the S-C 4400 was linked directly on-line with the Univac 1050.

The new S-C 4400 is produced at Stromberg-Carlson's West Coast data products facility in San Diego.

It accepts information from a computer and translates and records it on microfilm at 62,500 characters per second and is capable of producing a minimum of 50,000 filmed documents in an eight-hour working shift.



SAVED — Fire Marshal Hugh Rae rescues terrified blue heron from Convair flight line. Large bird was found huddled against fence in effort to escape blasts from on-coming planes.

Road Runners' Entry Is Third

Convair Road Runners were rewarded for the fourth consecutive year for their entry at the annual rally of Border District Trailer Clubs of America last month at Del Mar.

This year the club's miniature trailer, propelled by the blue crepe paper "road runner" bird, took third place in the costume parade.

The CRA trailerite group won second-place prize for costumes in 1961. Since entering the mobile trailer the following year, they have taken first and second places.

Carl Scholl, club president, headed the Convair contingent of 22 units camping at the Del Mar Fairgrounds through the weekend of Oct. 16-18.

Frances Rush, wife of Harry, Dept. 48, won first prize in the hobby show with her exhibit of trout flies.

Next Road Runner outing will be to Barrett Lake Trailer Park, on Hwy. 94 each of Jamul the weekend of Nov. 13-15. Howard French is wagonmaster.

Nomination of officers will be Nov. 19 at Gillespie Field Clubhouse. CRA Commissioner Ralph East urges members to bring friends. Convair, GD/E, and Stromberg-Carlson trailer and camper owners are all eligible.

Friday Is Deadline For NMA Tournament

This Friday (Nov. 6) is last day for Management Club members at Convair, GD/E, and S-C to sign for the golf tournament sponsored by San Diego Area Council, NMA.

Play will be the weekend of Nov. 21-22 at Cottonwood course.

Entries must be made by foursomes, threesomes, or twosomes. Fee is $7.50 each.

Call Terry Kell, Convair, Plant 1, ext. 605; or Ernie Paul, Stromberg-Carlson Plant 2, ext. 2193.

SKI MOVIE SCHEDULED NEXT MONDAY, NOV. 9

Convair skiing enthusiasts will have a chance to see "The Skiers," a Warren Miller ski movie, next Monday (Nov. 9), 8 p.m. at Hoover High School auditorium. Price is $1.50.

GD/E, S-C GOLFERS SET NOV. 14 TOURNEY

GD/E Men's Golf Club, made up of GD/E and S-C employees, will hold the next links tourney Saturday, Nov. 14, at Valle Verde Country Club.

CRA Calendar

(Convair Recreation Association has some 30 activities in operation for Convair, GD/E, Stromberg-Carlson people. For information call CRA Headquarters, ext. 1245.)

★ ★ ★

AEROMODELERS — Flying sessions Saturday and Sunday mornings, 8 a.m. to 1 p.m., Clairemont Flying Site.

BASKETBALL—First workout for CRA entry in City League play tomorrow night (Nov. 5), 6:50 p.m., Muni Gym, Court 2.

CAMERA CLUB — Meeting Nov. 15, 7:30 p.m., Photo Arts Bldg., Balboa Park.

FENCING — Workouts and instruction each Friday, 7-10 p.m., YWCA, 10th & C Sts.

FISHING CLUB — Meeting Nov. 17 Gillespie Field Clubhouse. Potluck at 6:30 p.m.; business session, 7:30.

GARDEN CLUB — CRA-ARA joint meeting tonight (Nov. 4), 7:30 p.m., Floral Association Bldg., Balboa Park.

GOLF — Sign-up begins tomorrow (Nov. 5) for CRA turkey shoot tourney Nov. 21 at Coronado course. Call ext. 1705 before Nov. 11 for starting times.

ICE SKATING — Thursday ice skating sessions for GD people, Mission Valley Ice Plaza, 6:30-8 p.m.

JUNIOR RIFLEERS — Club shoot 8 a.m., Nov. 7, CRA range. Meeting Nov. 18, 7 p.m., ARA Clubhouse.

MODEL RAILROAD — Work nights, Fridays, 7:30 p.m.; open sessions, Sundays, 1-4:30 p.m., House of Charm, Balboa Park.

MOVIES — Reduced prices for GD people at State Theater, Euclid and El Cajon Blvd. General admission: adults, $1; children, 35¢.

PISTOL CLUB — Club shoot 9:15 a.m., Nov. 8, San Diego Police Pistol Range, Federal Blvd. and Home Ave.

RADIO CLUB — Next meeting Nov. 12, 8 p.m., Harbor Drive club headquarters.

RIDING CLUB—Meeting Nov. 5, 7:30 p.m., Gillespie Field Clubhouse.

ROAD RUNNERS — Weekend outing Nov. 13-15 to Barrett Lake Trailer Park. Meeting Nov. 19, 7:30 p.m., Gillespie Field Clubhouse.

ROCKHOUNDS — Meeting Nov. 12, 7:30 p.m., Gillespie Field Clubhouse. Lapidary workshop open Wednesdays, 7-9 p.m.

SNOW SKI CLUB — Tickets on sale to annual Sno Ball, Nov. 21, 8 p.m., U. S. Grant Hotel. First dry land ski class Nov. 15, 1-3 p.m., Conference Bldg., Balboa Park. Call Joe Harris, 284-0278.

SPORTS CAR CLUB — Meeting Nov. 4, 7:30 p.m., Convair executive dining room.

STAMP CLUB — Meeting Nov. 5, 7:30 p.m., Convair executive dining room.

WATER SKI CLUB — Weekend skiing cancelled until spring.

Deadline Is Nov. 11 For Golf Tourney

Convair linksmen may start signing tomorrow (Nov. 5) for the November CRA golf tourney. Entry deadline is Nov. 11.

The tournament is set for Saturday, Nov. 21, at Coronado course, reported Commissioner Ken Wulfemeyer. Winners will receive turkeys.

Starting times will be given on a first-come, first-served basis. Call ext. 1705, Plant 1.

Thanksgiving Day Grid Ducats on Sale

Discount tickets to San Diego Chargers' home game on Thanksgiving Day now are on sale at Convair, GD/E, and S-C employee services.

The Chargers will meet the Buffalo Bills at 12:35 p.m. Nov. 26 in Balboa Stadium.

Regular $3.50 seats are offered GD fans for $2.50.

Sports & Recreation

Snow Ski Club Facing Busy Winter Schedule

A jam-packed schedule of winter events looms for CRA Snow Ski Club members as they firmed up the calendar at a meeting last night, Nov. 3.

Biggest social affair of the year is the annual Far West Ski Association Sno-Ball Nov. 21, in the Palm Room of U. S. Grant Hotel. Tickets, at $1.50, went on sale this week at Convair employee services.

QUEEN HOPEFUL—Nancy Hollerbach, GD daughter, has been entered as CRA Snow Ski Club's candidate for annual Sno Queen. Winner will be announced at Nov. 21 Sno-Ball.

The CRA group has selected Nancy Hollerbach, daughter of Bernice Hollerbach of Dept. 319, Plant 19, as the Convair club's candidate for Sno Queen. Nancy was Queen of the recent Portuguese Festival.

As a forerunner to the ski season, free dry land ski lessons start Nov. 15 at Balboa Park's Conference Bldg. under direction of CRA Commissioner Joe Harris.

Harris urges all beginners to register for the four-Sunday course as soon as possible by calling him at his home phone, 284-0278.

Classes will meet from 1 to 3 p.m., Nov. 15, 22, and Dec. 6. Fourth session will be on the snow at Snow Summit, Big Bear.

CRA Ski Club has joined Don Diego Club to lease an "A"-frame ski chalet at Mammoth Mt. for six weekends during the next few months. One weekend is scheduled in each month from December through May of next year. First skiing date is Dec. 5-6.

Harris points out that the price tag is especially attractive with $20 taking care of each person's transportation, two nights' lodging, and a Saturday night steak fry. Reservations will close a week in advance of each outing.

Skiers will keep in practice in between by jaunts to Snow Summit at Big Bear Lake each weekend during the snow season. A New Year's weekend trip will be over the four days from Dec. 31 to Jan. 3.

Longer journeys will be held early next year to Alta, Sun Valley, Aspen.

Club meetings will be held the first Tuesday evening of each month at Catamaran Hotel, Mission Bay. Special ski movies, door prizes, and dancing will be on the program each meeting night.

Three Shooters Tie With 25 Straight

Three marksmen tied at 25 straight in the 16-yd. event in CRA Gun Club's Oct. 25 Troy trapshoot but only earned $3 apiece.

Don Jones and Bill Crafton of San Diego and Don Estes of Lakeside had a running start toward the big money but none had perfect scores in the handicap and combined events.

Estes and Jim Prewitt of Spring Valley won $4.50 each for high score. They tied at 47.

A clean sweep in all events at the Nov. 22 Troy shoot will be worth at least $300 to the lucky shooter. Now at stake is $92.25 for perfect handicap and $192.25 for combined. This amount will be swelled by the day's entry fees.

Leatherneck Bowl Tickets Being Sold

Football fans may purchase tickets to the annual Leatherneck Bowl, pitting Pensacola Navy team against San Diego Marines on Nov. 22, at Convair employee services.

Game time is 1:30 p.m. in Balboa Stadium.

General admission price is $1.50 and reserved seats, $2.50. Reserved seat tickets are available at Convair for the first time and are all in good locations.

Proceeds from the game go to charity.

SPORTS DRIVERS TO MEET TONIGHT

Sports car drivers meeting tonight (Nov. 4) will take part in a fun event arranged by Tom Kienholz of Dept. 6. Members will gather at 7:30 p.m. at the Convair executive dining room, Pacific Hwy. John Mikol of Dept. 423 has been named publicity chairman for the current club year.

Mgt. Club Members Will Visit Tecate

Convair Management Club members will see a brewery in action Nov. 25 when they travel to Tecate, Mexico, en masse.

Buses will transport club members directly after work. Accommodations for 250 will be provided with departure times at 3:30 and 4:30 p.m. from Plant 1. Travel time will be about an hour each way, with return to San Diego before midnight.

At Tecate they will be given a guided tour through the brewery and join in a barbecue dinner afterwards. Price is $2.50 each with tickets available at regular outlets.

Manufacturing control is sponsoring with Miles Stepich, general chairman.

Basketball Workout Set For Tomorrow

First workout for a CRA basketball entry in City League Tournament will be tomorrow night (Nov. 5), Pete Beyrer of CRA headquarters announced.

All players who want to turn out will meet at 6:50 p.m. on Court 2 of Balboa Park's Muni Gym. Two teams will be formed if enough turn out.

Gil Crosthwaite will coach the CRA entry.

Pre-season tourney will start Nov. 23 and league play around the first of the year.

CONFEREES — Representing General Dynamics divisions across continent were these procurement executives who gathered in San Diego Oct. 14-15. From left: W. G. Evans (Astronautics), D. H. Painter (Electric Boat), R. A. Wohl (Corporate Headquarters), R. D. Webster (Pomona), G. W. Zahrte (Convair), C. G. Keach (Corporate), S. A. Forter (Corporate), C. R. Schuler (GD/FW), R. F. Plimpton (Electro Dynamic), J. B. MacKinnon (GD/E, Rochester), E. F. Altimas (Canadair Limited), L. N. Parkes (S-C, Rochester), J. E. Eggleston (General Atomic), L. A. Wood (S-C, San Diego), R. R. Pierce (GD/E, San Diego), Arthur Dow (Corporate), H. E. Moose (Astronautics).

Mutual Procurement Problems Discussed by Division Reps

Seventeen key procurement executives representing General Dynamics Corporate Headquarters, nine divisions and Canadair Limited, conferred Oct. 14 and 15 at San Diego.

The session was convened at direction of Max Golden, Corporate vice president, to provide opportunity for joint discussion of mutual problems in the procurement field, and to exchange ideas on more efficient methods of accomplishing the procurement process.

Cost savings were an underlying theme of the meeting.

Attending from Corporate Headquarters were R. A. Wohl, C. G. Keach, S. A. Forter and Arthur Dow; GD/Astronautics was represented by H. E. Moose and W. G. Evans; Electric Boat by D. H. Painter; GD/Pomona by R. D. Webster; GD/Convair by G. W. Zahrte; Canadair by E. F. Altimas.

Representing GD/Fort Worth were C. R. Schuler; R. F. Plimpton attended from Electro Dynamic; J. E. Eggleston from General Atomic. From Rochester, L. N. Parkes represented Stromberg-Carlson, and J. B. MacKinnon, GD/Electronics, while San Diego operations of these divisions were represented by L. A. Wood and R. R. Pierce, respectively.

OH HAPPY DAY!—Dick Robinson, GD/Astronautics Dept. 123, center, looks with happy respect at chain of paper clips—heart of an Employee Suggestion which earned him $2,074.80—after receiving check from Manager M. A. Young, left. Sharing enthusiasm at right is Supervisor R. L. Hall.

Handful of Paperclips Key To Simple Saving of $20,748

Alertness and ingenuity—plus a handful of paper clips — have earned a $2,074.80 Employee Suggestion (ES) award for R. J. "Dick" Robinson of graphic reproduction (Dept. 123) at GD/Astronautics.

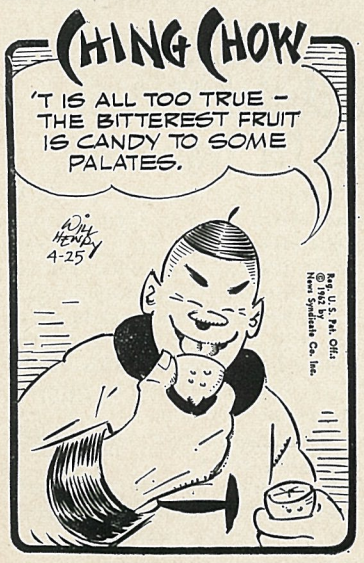
During Robinson's four years with Astro, his work assignment has involved operation of a special camera which turns out reduced-size reproductions of original engineering drawings.

The camera handles a high work volume, so an occasional drawing damaged during reproduction might have seemed no great cause for alarm. But, perhaps because he is an after-hours drafting student at San Diego City College, Robinson was concerned with the cost of redrawing a ruined vellum.

The trouble, he discovered, came at the end of a run, when drawings sometimes failed to separate from the moving platform of narrow belts which moves them through the camera.

Then Robinson had an idea. It occurred to him that large-size paper clips could be fitted between the transport belts to lift the vellum at the end of the run and guide it properly.

Total cost of Robinson's installation—34 paper clips at about .6 cent each—was less than a quarter. In its first year of use, his idea has saved GD/Astro an estimated $20,748!



Canadair Sends Three to U.S.

Pierre Racine checks in at GD/Astronautics this week as the initial participant in a unique "international" Industrial Management Training Program.

Racine has worked since 1956 at Canadair Limited, a General Dynamics subsidiary. He is one of three promising young Canadians selected to take part in this special year-long, on-the-job training effort.

Desmond Bourke is now set for a similar program at GD/Fort Worth, while Claude Lacombe reports to GD/Pomona for the same purpose next April.

Plans for the program originated with President Roger Lewis of General Dynamics and J. Geoffrey Notman, Canadair Ltd. president.

Basically, the program is a general management training program in which trainees are to be exposed to the objectives, policies and operations at the participating General Dynamics divisions. Each man will fill productive work assignments while receiving overall familiarization with operations.

Racine's assignments begin Monday (Nov. 9).

First C-141 Goes to AF

First C-141 Starlighter jet transport, for which GD/Convair is building the empennage under a subcontract from Lockheed-Georgia Co., was delivered to the Air Force on Oct. 19.

The giant plane was accepted by Undersecretary of the Air Force Brockway McMillan in ceremonies at Tinker Air Force Base near Oklahoma City.

The C-141 cargo jet can carry a maximum payload of over 70,000 pounds, the equivalent of two freight carloads, of military equipment to Europe or Africa in less than 10 hours.

It will be in service with the Air Force by early next year and operational in squadron strength by the middle of the year.

Convair is manufacturing 134 tail sections for the C-141 fleet.

Garrison to Chair Aerospace Section

Three Dynamics safety engineers will serve on the executive committee of the Aerospace Section of the National Safety Council during the next year.

J. W. Garrison, chief safety engineer at GD/Astronautics, was elected general chairman of the Section at elections during the 1964 National Safety Congress in Chicago last month.

H. S. Naish, GD/Pomona chief of employee sevices and safety, was named industrial hygiene chairman for Aerospace Section.

Fred Temple, GD/Fort Worth chief safety engineer, also was chosen to serve on the executive committee.

The Aerospace Section is one of the National Safety Council's major industrial divisions, including 64 member companies.

BIG FORMING PRESS MOVED TO PLANT 1

A large Versun Wheelen press was moved into sheet metal area of Bldg. 1 last week from Astro Plant 19, formerly Convair Plant 2. The Air Force-owned high pressure hydraulic forming press was used at Plant 2 during F-102/F-106 production.

GD/E LAB MANAGER GETS SOCIETY POST

Dr. John V. Bouyoucos, manager of the hydroacoustics advanced development laboratory at GD/Electronics, Rochester, has been appointed chairman of the Acoustical Society of America's newly formed technical committee on engineering acoustics.

If what you did yesterday still looks big, you haven't done much today.

Prominent Member Of GD Board Dies

Robert F. Windfohr, 70, General Dynamics director and prominent Texas oilman and civic leader, died last month in Albuquerque, N. M.

He was elected a director of Consolidated Vultee Aircraft Corporation Oct. 23, 1953, and became a director of General Dynamics Corporation April 30, 1954 at the time of the merger.

Mr. Windfohr twice served as president of the Texas Mid-Continent Oil & Gas Association. He was presented with the Association's Distinguished Service Award in 1957.

Mr. Windfohr attended public schools in Baltimore and was graduated from Baltimore City College and the University of Maryland.

He served in the Army artillery during World War I and was discharged a major.

"Mr. Windfohr's death removes a dynamic force from the community," The Fort Worth Star Telegram said in an editorial. "He was a lusty, outspoken business man — a fighter — who scrambled his way up in the oil industry during some of its most turbulent years."

Mr. Robert Windfohr

Entombment was at Burnett Mausoleum at Oakwood Cemetery in Fort Worth.

Survivors include his wife, Mrs. Anne Windfohr; a daughter, Mrs. W. W. Meeker of Fort Worth and Midland; a sister, Baroness Lillian von Schlotheim of Daytona Beach, Fla.; and a nephew, Robert H. Ziegler, of Ketchikan, Alaska.

Dynamics Mourns Loss of Director

By resolution, members of the Board of Directors of General Dynamics Corporation paid tribute to Mr. Windfohr as "our great friend and colleague."

"As one of the outstanding men in the Southwest, he enriched this Board of Directors with the full measure of his great ability, his great spirit and his great personal warmth and charm. He will long be remembered as a vigorous and forceful director, of sound judgment, and of absolute integrity; a director who demonstrated great courage and a strong sense of duty during the period of the Corporation's difficulties . . ."

A copy of the resolution was sent to the family as an enduring record of the Board's regard and affection.

Astro Value Effort Outlined at Parley

E. D. Heller, Astronautics manager of cost reduction and value control, outlined Astro's value engineering organization to attendees at the 1964 Western Colloquium of Society of American Value Engineers in San Francisco, Calif., Oct. 23.

Heller's subject was "Value Engineering at GD/Astronautics and Its Relation to the Total Cost Reduction Program."

Other GD delegates were Wayne Turner of Convair educational services; Astro's G. M. Loudermilk, Dept. 406-0, and R. W. Eichmann, Dept. 380-6.

People Mobility

Hatcher, Kunze Shift to E-B

ROBERT M. HATCHER has been transferred from Corporate Headquarters to Electric Boat division as director of administration and material. **CONRAD KUNZE** also has shifted from the New York office to become program control manager at E-B.

WARREN FEDDERSEN has transferred from Convair division to New York where he reports to Clinton Arnot, Corporate director of plant engineering.

JAMES SOWERS, former cost analyst, has been named Corporate director of cost analysis, reporting to W. T. Lake, comptroller.

BRIG. GEN. K. E. FIELDS, USA (ret.), has joined the Corporate Engineering and Program Development staff on a part-time basis. A former director of the Military Applications Division of the AEC, Fields most recently was executive vice president, Bulova Watch Co.

SAMUEL A. FORTER, formerly of Republic Aviation, has joined the Corporate staff and will be active in the material control area.

JOHN W. SORSBY, former general manager of Rank Cintel division of the Rank Organization, London, England, has joined the International Staff as Marketing Representative-Europe, and will be based in London.

ALAN B. HARRIS has joined the Corporate comptroller's staff as financial analyst. He was formerly with Curtiss-Wright.

ALAN R. FINBERG, former partner in the law firm of Stein, Abrams and Rosen, has joined the staff of the Corporate vice president and chief counsel as associate counsel.

Interdivisional Transfers

(Following are recent personnel transfers among General Dynamics divisions. In parentheses are dates when individuals joined the company.)

CLEMENS F. KLINGLER (1959) from Astro to Convair engineering; **DANIEL R. TAYLOR** (1961) from Astro to Stromberg-Carlson, San Diego, manufacturing analysis; **HORACE L. DEES** (1951) from Astro (Salina, Kan.) to center fuselage structure, Fort Worth.

WARREN W. WOOLL (1963) from Astro to Convair engineering; **HAROLD C. LEPPART** (1950) from Fort Worth to manufacturing control, Convair; **GEORGE A. MANSUR** (1961) from Astro to Stromberg-Carlson, San Diego, engineering; **DELBERT M. THOMAS** (1962) from Astro to Convair engineering.

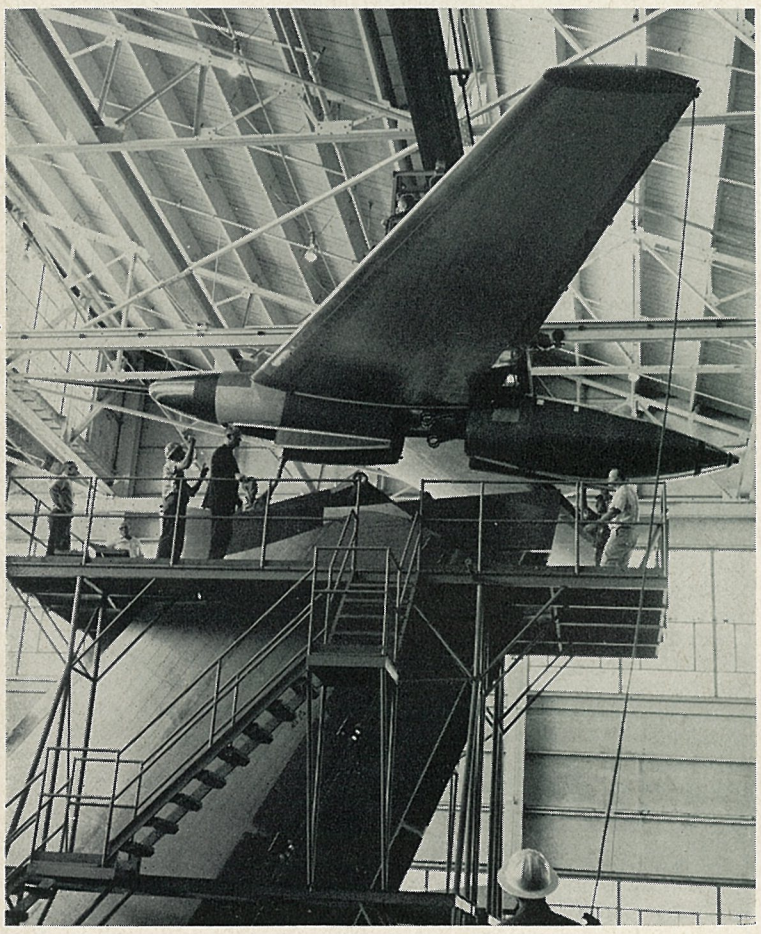
MILTON EDELMAN (1951) from Stromberg-Carlson, Rochester, to Electronics, Rochester; **LIONEL F. VINNELL** (1962) from Astro to Stromberg-Carlson, San Diego, engineering; **WILLIAM D. JOHNSON** (1956) from Astro to Convair experimental; **DAVID E. HALE** (1959) from Astro to field service representative, Stromberg-Carlson, San Diego.

GD

SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

Vol. 17, No. 24 PUBLISHED BY GENERAL DYNAMICS CORPORATION 52 Wednesday, November 18, 1964



DOUBLE MATE — C-141 horizontal stabilizer, appearing almost like complete plane itself, is swung onto vertical of another ship's set in Convair's C-141 production area as all components of 25th tail section go through interchangeability check, required by Lockheed-Georgia Co., prime contractor for Air Force's cargo jet transport. First C-141 was delivered to AF on Oct. 19. It will go into service early next year.

Parts in C-141 Program Checked For Likeness

Another milestone was reached in GD/Convair's C-141 production program early this month when all components going into the 25th empennage were put through a complete interchangeability checkout.

N. P. Pearson, in charge of C-141 production, said that throughout the balance of the subcontract for Lockheed-Georgia Co. each 25th tail section constructed for the Air Force jet cargo transport must be checked for interchangeability of parts.

All items classed as interchangeable are mated with another unit, in this case, No. 26. First interchangeability checks were accomplished on Nos. 1 and 5 over a year ago.

Parts such as elevators, rudder, leading edges are mated progressively during assembly. Access doors, horizontal tip, high frequency and Loran antennae, trailing edge doors are attached to other stabilizer units. And, finally, the huge vertical and horizontal stabilizers are mated with each other and with their opposite of another ship's set.

Convair, Lockheed, and Navy inspectors witness the entire mating process.

Empennage No. 24 leaves the Convair San Diego plant this month bound for Lockheed-Georgia's Marietta division—just a little more than two years from the time the first hole was drilled for the first C-141 sub-assembly in the Bldg. 2 production area.

Production rate is stepping up to three completed empennages in both December and January, four in February. Peak rate of seven a month will be reached next spring.

DEPT. 311 LINE-UP — Convair people making up Dept. 311 (Little Joe II launch operations) at White Sands Missile Range, N.M., include administrative, engineering, shop, inspection personnel permanently based at NASA missile test range. Above photo shows entire Dept. 311, and H. K. Cheney (standing at far left), Little Joe II deputy manager of launch operations, who "commutes" from San Diego. Others in back, from left, are: R. W. Olson, F. L. McCord, A. M. Jackson, Flo Lawhead, C. W. Westmoreland, "Mike" McKenzie, C. M. Davis, Jo Anne Larkins, B. J. Ballentine, F. M. Peterman, R. L. Blades. Kneeling (from left) are: A. Ramirez, W. E. Covington, N. H. Kolish, R. D. True, O. L. Todd, L. A. Garrett, J. S. Boaz, site administrator, H. L. Shankle, A. J. Gagliardo, E. R. Compton. They live in Alamagordo, El Paso, or Las Cruces.

Convair Earns Praise For Skill In Calibration

GD/Convair standards laboratories have been praised by the California Division of Highways for the "speed, skill, and efficiency" shown in performing calibration on two large testing machines recently.

The division's standards laboratories responded in an emergency situation when there was no time for large equipment to be transported from Los Angeles for performing calibration. Convair specialists accomplished calibration within 24 hours.

The force test machines in question are based at the Highway Division's San Diego location for testing samples of cements, soil and asphalts used in laying road beds.

"We appreciate very much the speed, skill, and efficiency shown by the General Dynamics/Convair standards laboratories in performing this calibration," wrote P. E. Ruplinger, district materials engineer, on behalf of J. Dekema, district engineer.

"There has been such a great need and so much demand for a complete calibration service in the San Diego area that Convair top management gave the go-ahead for making the division's refined calibration techniques and highly-skilled technicians available to industry in general," explained G. R. Bailey, quality control labs supervisor.

Convair's standards laboratories have long supported work of a specialized nature for sister divisions—Astronautics, GD/Electronics, Stromberg-Carlson, General Atomic, and Pomona. They are now offering the same service to commercial and military customers.

"Years of experience in the maintenance of exacting standards for thousands of pieces of laboratory, factory, and field equipment have endowed Convair's standards laboratories with

(Continued on Page 2)

Sales, Service Under Meador

A new commercial sales and service organization has been formed at GD/Convair under direction of C. L. Meador, vice president of contracts and commercial sales, Convair President J. H. Famme announced this week.

Absorbed into the new organization are existing functions of contracts, business planning, and service parts.

L. J. Bordelon has been named manager of commercial customer requirements reporting to Meador in his capacity as acting director of commercial sales and service.

Another new post, commercial sales manager, is yet to be filled.

Others reporting to the vice president of contracts and commercial sales are: D. H. Digges, director of military and commercial contracts; R. E. Bechtol, manager of business planning; J. Doig, manager of service parts.

The commercial sales and service department will be responsible for overall direction of Convair's commercial sales efforts and will maintain a field organization to provide customer service and to support divisional sales efforts, as well as seeking out new sources of commercial business.

Work Begins On Prototype Propjet 240-D

A Convair-Liner 240, sturdy as ever, returned home to General Dynamics/Convair's San Diego plant the middle of last month to take on a new role as prototype Dart-Convair 240-D.

Initial modification work is under way to prepare the plane for installation of Rolls-Royce Dart R. Da. 10 propjet engines as Convair enters its modernization program for 240 twin-engine aircraft.

First Rolls-Royce engine will be flown to Convair this month for use in engineering and planning of engine installation details.

The 240, obtained by Convair from Garuda Indonesian Airways where it had been in active service for years over Garuda's Asian routes, is in good mechanical shape, said Convair's flight crew who flew it back from Hong Kong.

W. B. Harwell and Lindy DeVine, pilots, and Ludy Knudsen, flight engineer, picked up the craft at Hong Kong from a Garuda crew who flew it there from Djakarta. The Convair men and plane left Hong Kong Oct. 4 for longest leg of the transoceanic journey, flying nonstop to Tokyo in 9½ hours. Adverse weather and winds delayed them in the small northern Japanese village of Shitose on Hokkaido Island where they waited out the storms for several days.

On Oct. 12 they resumed their ferry flight across the Bering Straits to Shemya AFB, an isolated DEW outpost in the Aleutians. Hops to Anchorage, then to Seattle, landed them in San Diego on Oct. 14.

Modification work at Convair will be semi-projectized under R. R. Hoover, Dart-Convair program manager, said Convair President J. H. Famme.

Engineering responsibility has been assigned A. J. Savard who has been named project engineer, reporting to C. W. Frick, vice president-engineering.

Other key personnel assigned to the Dart-Convair program on a full-time basis and responsible for coordinating all matters relating to their respective line functions are: H. G. Rote, manufacturing; E. R. Hoag, cost control; E. R. Hockert and M. E. Kruger (part-time assignment), material and production services; J. R. Mikulsky, program plans and systems; H. W. Balke, quality control; S. D. Berling, modification publications; C. W. Stafford, tooling and methods.

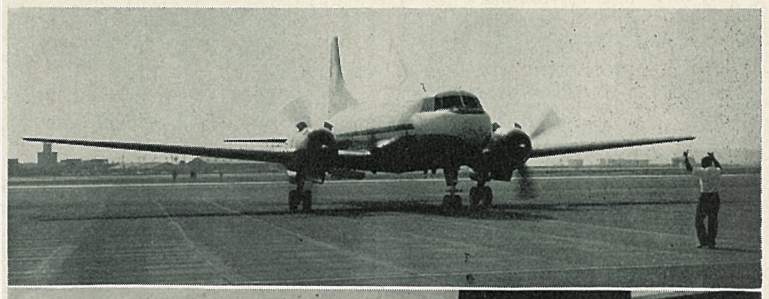
Colin Britten, Rolls-Royce engineering representative, will be based at Convair during major design phase of the Dart-Convair program.

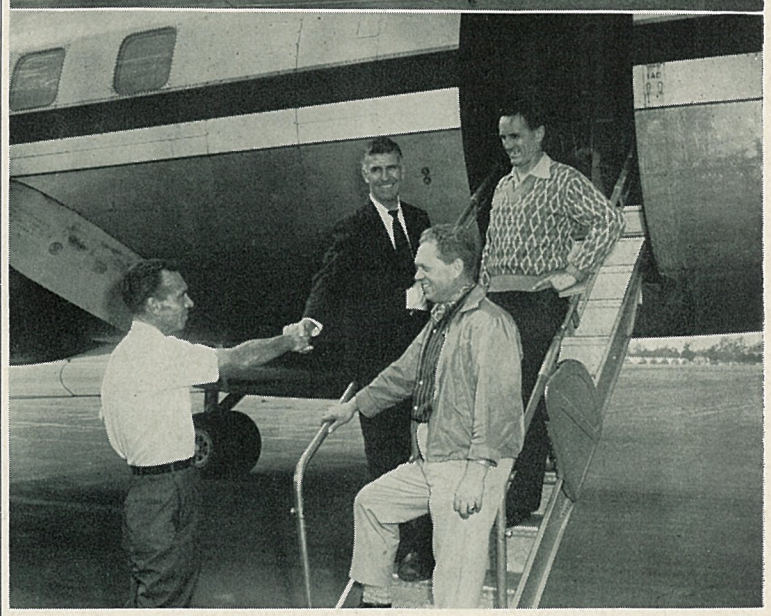
The engineering group is physically located on the third floor of Bldg. 5. Work on the 240-D will be accomplished in Bldg. 2.

Convair turned out over 1,000 of the Convair-Liner 240, 340, and 440 transports for commercial and military use in a ten-year period. First 240 flew in March of 1947. All still lead active lives with airlines and military services.

New Apprenticeship Center Opens at SD

H. W. Rubottom, head of Convair educational services, was one of the principals taking part in ceremonies at the opening of San Diego's new Apprenticeship and Training Information Center late last month.





WELCOME HOME! — Convair 240 lands on flight line at San Diego on return home from service with Garuda Indonesian Airways to go into modification as prototype Dart-Convair 240-D with Rolls-Royce Dart turboprop engines. In lower shot, W. J. Martin, director of reliability, greets Pilots W. B. Harwell and Lindy DeVine, and Ludy Knudsen, flight engineer, who flew plane from Hong Kong to Aleutians and south to San Diego.

LONG SERVICE — On hand to add their congratulations when A. J. Savard, GD/Convair engineering, received his 35-year service emblem from J. H. Famme, Convair president, were, from left: W. W. Fox, director of engineering; Savard; R. R. Hoover, program manager, transport project; Famme; B. J. Simons, project manager, commercial transport; J. M. Adamson, director, design development.

Log Book Entries

Also wearing new 25-year emblems are, from left, W. P. Upham, D. M. Robinson, and J. T. Frichtel, all of Dept. 401. W. D. Reed, Convair manager of manufacturing, made presentations.

P. L. Brady, Dept. 6-22, left, was presented 25-year service emblem by C. W. Frick, GD/Convair vice president-engineering, while C. R. Greenwood, Dept. 34-7, received his from G. W. Zahrte, manager of material.

Service Emblems

CONVAIR

Service emblems due during the period Nov. 16 through Nov. 30.

Thirty-five-year: Dept. 400-1, E. L. Raymond.

Twenty-five-year: Dept. 6, W. C. Gilger, H. E. Ray; Dept. 131, Anthony Kolodziej; Dept. 401-1, G. L. Farrington.

Twenty-year: Dept. 401-5, K. B. Offerman.

Fifteen-year: Dept. 14-4, Lillian H. Brown.

Ten-year: Dept. 6-53, E. C. Laudeman; Dept. 15-0, F. M. Castro; Dept. 141, C. G. Smith.

STROMBERG-CARLSON

Ten-year: Dept. 33-00, Medora E. Reep.

Awards

CONVAIR

Employee Suggestion Awards approved for periods ending Oct. 30 and Nov. 6.

Dept. 14, J. A. Chavez, $54; M. M. Wood, $96.27 (partial payment).

Dept. 119, R. V. Lucero, $12.08; L. O. Smith Sr., $10; R. W. Talmage (two awards) $102.50 (partial payment), and $66.74.

Dept. 131, J. A. Gliebe and P. Di Giulio (two joint awards), $5 each on both.

Cost Improvement Proposals approved for the same periods.

Dept. 3, D. D. Dimmitt.
Dept. 34, E. R. Hockert.
Dept. 93, R. G. Macomber.
Dept. 141, N. P. Pearson.
Dept. 401-7, V. P. Mavrinac.

Deaths

ELECTRONICS

BOGACZ—Helen G., Dept. 1261. Died Nov. 10. Survived by husband, F. J. Bogacz, Convair, Dept. 15; daughter, Nancy; and son, Walter.

Retirements

CONVAIR

ALBRIGHT — Turner J., Dept. 93-6. Seniority date Sept. 7, 1949, retired Oct. 30.

BROWN—Susan V., Dept. 44-4. Seniority date Aug. 9, 1950, retired Sept. 29.

BUCKNER—Arthur E., Dept. 3-1. Seniority date June 1, 1956, retired Sept. 24.

CORYELL—Theodore M., Dept. 3-1. Seniority date July 19, 1955, retired Sept. 22.

HOPKINS—Henry F., Dept. 171. Seniority date Feb. 3, 1948, retired Aug. 26.

KEENAN—James, Dept. 133. Seniority date Jan. 5, 1942, retired Oct. 15.

MOTT—Thomas O., Dept. 14-4. Seniority date March 31, 1948, retired Oct. 23.

MURGATROYD—Lawrence N., Dept. 23-1. Seniority date May 14, 1956, retired July 18.

WAITE—William H., Dept. 216. Seniority date Oct. 21, 1930, retired Oct. 30.

WHITLOCK—Charles, Dept. 25-5. Seniority date Dec. 6, 1948, retired Oct. 30.

ELECTRONICS

WRIGHT—Mary W., Dept. 4073. Seniority date June 23, 1947, retired Nov. 1.

ZAEBST—Ivan R., Dept. 1763. Seniority date July 16, 1956, retired Nov. 1.

HOLLOMAN AFB

PARKHURST—Albert C., Dept. 313-5. Seniority date July 9, 1956, retired Sept. 15.

Convair Daughter Wins Beauty Honors

A Convair daughter, Ginger Cheney, will be one of the beauties gracing the royal float in this coming Sunday's (Nov. 22) annual Mother Goose Parade in El Cajon.

Ginger, 17, was one of nine finalists out of 42 contending for the Princess crown.

Ginger, daughter of Mr. and Mrs. Harold K. Cheney (he's Little Joe II deputy program manager for launch operations) is a senior at Grossmont High.

880 NO. 1 DELIVERED TO TRANS WORLD

Trans World Airlines took delivery on Convair's No. 1 880 jetliner late last month. TWA has 20 880s in service over its domestic routes. The airline inaugurated 880 operations in January of 1961.

Club's Tecate Trip Nearing

Management Club members at Convair are snatching up their tickets fast for the coming Nov. 25 trip to Tecate, Mexico, with over 200 expected to join the tour. This Friday (Nov. 20) is deadline for buying tickets at $2.50 from plant outlets.

Six buses will transport members to the border town. Departure times from Bldg. 19 executive parking lot will be staggered from 3:30 p.m. to 4:30 to coincide with end of different plant shifts.

Miles Stepich, chairman for sponsoring material and production services departments under G. W. Zahrte, says that members will have a chance to observe processes of the Cuahutemoc Brewery, which produces the well-known brands of Tecate and Carta Blanca beer. Jorge Batista, the brewery's director of public relations, will conduct the tour, explaining the malting, cooking, cooling, bottling and canning processes.

A Mexican steak dinner will be hosted by the brewery management in the company cafeteria. Entertainment will be provided by singers and dancers from Rancho la Puerta.

Arrangements for the trip have been coordinated by Convair's James Hardison and Pedro Santana, director of tourism at Tecate.

Hydrodynamic Basin At Ramp Renovated

Renovation of Convair's large hydrodynamic towing basin at the seaplane ramp nears completion this week with installation of stainless steel gates across the model set-up section.

The gates swing across the set-up area to dam it from the main basin during change of models on the carriage. Water is pumped out so that operators can make the set-ups on dry "ground," instead of under water.

Plant engineering directed improvement work and designed and installed the steel gates.

IASCO and JAL Crews Use 880-M Trainer

Two flight groups, pilots of International Air Service Co., Ltd., and Japan Air Lines flight engineers, were at GD/Convair last month for instruction in the Convair 880-M cockpit procedures trainer.

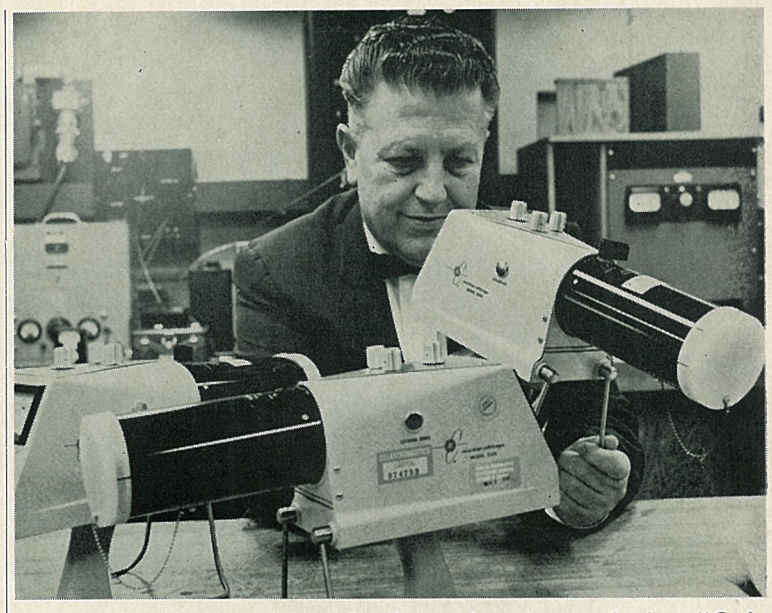
C. J. Falkenthal, Convair flight engineer instructor, and Shigekazu Ishiro, JAL flight engineer instructor, conducted instruction.

IASCO captains were Sidney Joiner, W. E. Murray, C. W. Bowers Jr., C. W. Dietrich, R. W. Steinhamer, E. T. DeMoe.

JAL flight engineers were E. Katoh, R. Soga, H. Kawaguchi, and S. Mutoh.

Next group due to take 880-M instruction at GD/Convair will be Japan Domestic Airlines' co-pilots, expected some time this month.

880-M CLASS — Latest group of flight men to go through GD/Convair's checkout in 880-M cockpit procedures trainer included JAL flight engineers and six International Air Service Co. pilots. At far right are Shigekazu Ishiro, JAL flight engineer instructor, and C. J. Falkenthal, Convair flight engineer instructor, in charge of training.



GLAMOUR TASK — W. A. Dersham takes close-up look at "Cutie Pies," catchy brand name of survey meters for radiation control, now in Convair's standards laboratories for calibration. Meters are example of wide variety of outside tasks coming to Convair's well-equipped facilities from other divisions and companies.

Convair Standards Labs Earn Praise For Calibration Skill

(Continued from Page 1)

outstanding capability in all phases of calibrating equipment for customers," Bailey said.

"As the only complete calibrating facility in the San Diego area, available for outside use, we can perform demanding calibration tasks at a reasonable fee and minimum down-time, saving our customers untold expense and delay."

Standards laboratories' list of outside customers now totals over 40 firms, and is growing daily. Among companies already using the calibration service are Rohr Corp., Cubic Corp., Fairchild Precision Metal Products, Straza Laboratories, Langley Corp.—to name a few.

When possible, equipment to be calibrated is brought into the laboratories to take advantage of the well-equipped facilities. However, if the machines are too large for easy handling, some of the 21 highly-trained men reporting to W. A. Dersham, in charge of the laboratories, are sent into the field. For example, in force calibration they use load cells with electrical readouts or proving rings for calibration on the spot.

They have been called in on such specialized tasks as calibration of test machines with 390,000-lb. force used by United Concrete Pipe Co. to test large sewer pipes, which it manufactures. NTH Products of El Cajon, producer of tubing and cylindrical bodies of exotic materials for nuclear reactors and aerospace components, has used Convair's calibration service on its material testing machines.

Convair standards laboratories are well equipped for calibration in the fields of electronics, electrical, mechanical, physical, hydraulics, pneumatics, linear metrology, nuclear. All standards are traceable directly to the National Bureau of Standards.

Calibration service, as well as maintenance and repair, is offered on a yearly basis with monthly scheduling on calibration needs.

RADIO CONTROLLED MODEL CONTEST SET NOV. 21, 22

General Dynamics modelers may be interested in the annual meet for radio controlled airplane models at Hourglass Field north of Miramar NAS, Nov. 21, 22. Information is available from Arch Pence, contest director, 582-5968.

'Equal Opportunity' Observance Slated

Tomorrow (Nov. 19) is "Equal Opportunity Day," held annually by the National Urban League as part of its effort to eliminate racial misunderstanding through interracial teamwork and cooperation.

D. C. Wilkens Jr., Convair director of industrial relations and a member of San Diego Urban League's advisory board, urged all Convair employees to give special consideration to this observance.

All divisions of General Dynamics traditionally pursue equal opportunity employment policies on a merit basis without regard to race, creed, color, or national origin.

More Free Parking Opens Near Convair

Additional free parking for Convair employees is now available just off Pacific Highway across from Bldg. 3, Plant 1.

The lot, which will hold about 50 cars, is adjacent to Vinyard Door Co. on Bean St., now the access street from Pacific Highway to Washington St. Its location is especially convenient for drivers who enter by Gate 5 at the north end of the plant, said J. K. Field, manager of personnel services.

Conservation Group Brings in $13,000

San Diego Ducks Unlimited's annual fund-raising dinner, held Oct. 1 at El Cortez Hotel, brought in $13,000, largest single amount ever donated by the local effort to the international conservation organization.

Payne Johnson, Stromberg-Carlson manager of communication who headed the 1964 committee as chairman, said that the fund will be used to help create a new waterfowl project in Canada.

"It's about a new invisible and wrinkle-free suit I've developed."

General Dynamics NEWS

Published by General Dynamics Corporation, One Rockefeller Plaza, New York, N. Y. 10020; with editorial headquarters at 3302 Pacific Highway, San Diego, Calif. 92112, P.O. Box 1950, telephone 296-6611, ext. 1071. Logan Jenkins, editor-in-chief.

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* * *

Affiliated editions of General Dynamics NEWS are published in Rochester, N. Y., covering GD/Electronics and Stromberg-Carlson, editorial offices, 100 Carlson Road, HUbbard 2-2200, ext. 2555. Fred E. Voss, editor; and at Groton, Conn., covering GD/Electric Boat, editorial offices at Groton, 446-3129. Ed Caffrey, editor.

Safety Standings

Division achieving best record:

Current month: (1) Pomona, (2) Convair, (3) Electronics-SD.

Year to date: (1) Pomona, (2) Convair, (3) Electronics-Roch.

Division showing best improvement:

(1) Pomona, (2) Canadair, (3) Convair.

SEVERITY RATE IMPROVES 30% DURING YEAR

Although overall accident severity rate among General Dynamics divisions has shown a 30 per cent year-to-date improvement, as of Oct. 1, frequency rate has improved only 4 per cent.

"This margin is precariously slim," A. A. Hendrix, vice president-industrial relations, commented. "Since the last three months of last year averaged only 1.69 in frequency, it is obvious that we must post some solid gains just to stay even. And, as you know, our goal calls for a lot more than that."

"Ever have days when you can't get to your files?"

A Quote: "The Price of Success"

(The following "quote" was written many years ago by Dr. Joseph F. Johnson, but the sentiments are as true now as then.)

* * *

"I often wonder what it is that brings one man success in life, and what it is that brings mediocrity or failure to his brother. The difference can't be in mental capacity; there is not the difference in our mentalities indicated by the difference in performance. In short, I have reached the conclusion that some men succeed because they cheerfully pay the price of success, and others, though they may claim ambition and a desire to succeed, are unwilling to pay that price.

AND THE PRICE IS:

"To use all your courage to force yourself to concentrate on the problem in hand, to think of it deeply and constantly, to study it from all angles, and to plan:

"To have a high and sustained determination to put over what you plan to accomplish, not if circumstances be favorable to its accomplishment, but in spite of all adverse circumstances which may arise—and nothing worthwhile has ever been accomplished without some obstacles having been overcome.

"To refuse to believe that there are any circumstances sufficiently strong to defeat you in the accomplishment of your purpose.

"Hard? I should say so. That's why so many men never attempt to acquire success, answer the siren call of the rut and remain on the beaten paths that are for beaten men. Nothing worthwhile has ever been achieved without constant endeavor, some pain and constant application of the lash of ambition.

"That's the price of success as I see it. And I believe every man should ask himself: Am I willing to endure the pain of this struggle for the comforts and the rewards and the glory that go with achievement? Or shall I accept the uneasy and inadequate contentment that comes with mediocrity? Am I willing to pay the Price of Success?"

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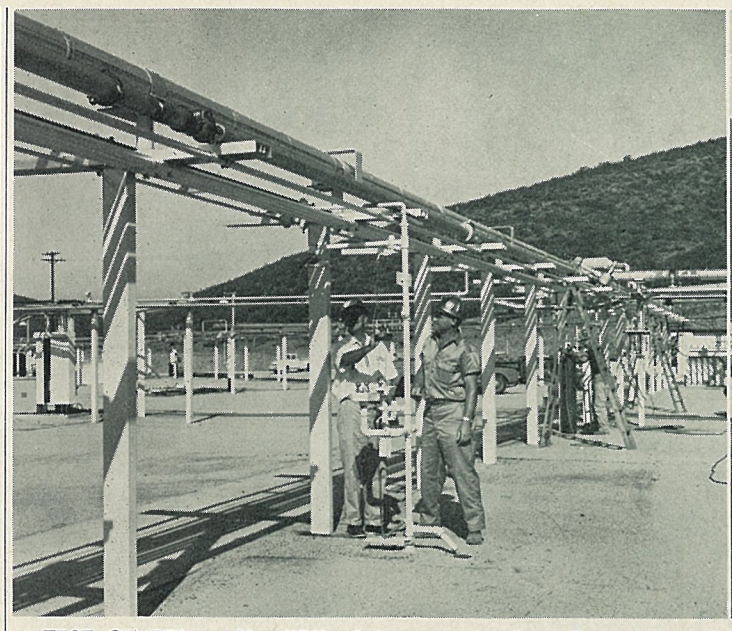
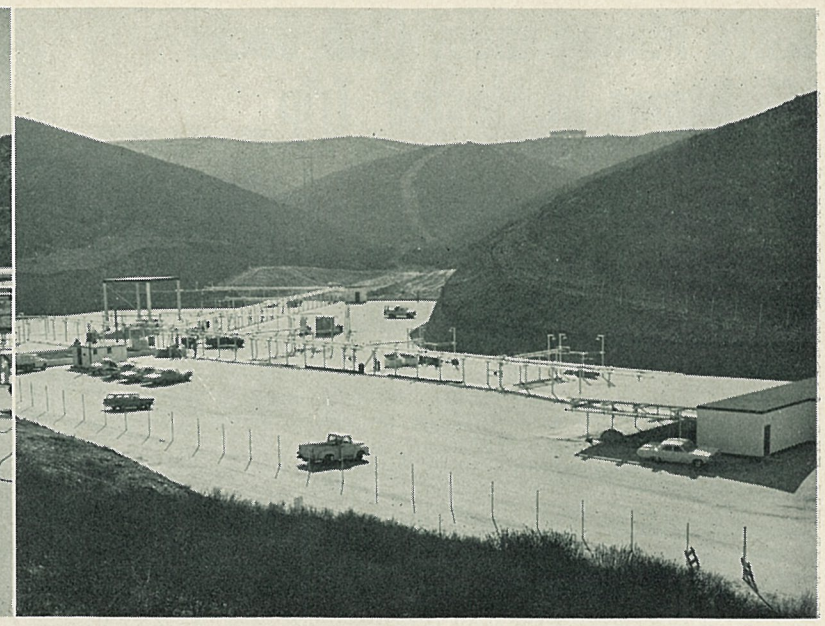




TEST CENTER — Site "B" of Astronautics Test Center near San Diego is nearing completion. Tests of liquid hydrogen and other super cold gases will be conducted here. In photo at left, Al Ward, Astro field engineer, and Ernie Morgan, construction contractor superintendent, inspect one of emergency shower units for employee protection.

General Dynamics Plants Close Nov. 26

General Dynamics people will join the rest of the country in observing Thanksgiving Day next Thursday (Nov. 26). Plants will be closed for the one day only, with regular work hours on Friday as usual. Necessary maintenance and security personnel will be notified if they are required to work on the holiday.

NATIONAL SECURITY COURSE COMPLETED

Three GD/Fort Worth employees recently earned certificates for completing the correspondence course in "The Economics of National Security."

They are Byron A. Kress, manager of nuclear missile and space systems, R. G. Atchison, estimating supervisor, and E. L. Schultz, B-58 test programs supervisor.

Sponsored by the Industrial College of the Armed Forces, the graduate-level course deals with inter-relationship of the nation's economy and national security.

Maj. Gen. W. S. Steele, deputy commandant, School of Extension Studies, presented the certificates.

VALUE ENGINEER TO PRESENT PAPER

Saul D. Lepen, GD/Astronautics value engineer in Dept. 521-0, will present a paper, "Cost Targeting for Short Term Low Production Projects," during a VE symposium Nov. 18 and 19, held by Army Missile Command, Redstone Arsenal. Lepen will also participate in a question-answer panel following formal presentations.

WILKENS ELECTED TRUSTEE FOR CIC

D. C. Wilkens Jr., Convair director of industrial relations, was elected to the board of trustees of the Citizens' Interracial Committee of San Diego County late last month. Twelve new members were named to the 29-member board by written ballot from the CIC voting membership.

PERRINE ELECTED ASSN. DIRECTOR

C. D. Perrine Jr., GD/Pomona executive vice president, was elected a director of the Los Angeles Council of Western Electronic Manufacturers Association last month. Newly-elected directors from each of the five WEMA councils will meet in San Diego Nov. 24 to elect the association officers for 1965.

Site 'B' For Hydrogen Testing Nearly Ready at New Center

Construction is nearing completion on the first facility being built in the new General Dynamics/Astronautics Test Center northeast of San Diego.

This is Site "B" slated for important liquid hydrogen testing.

Construction began in June and will be completed in mid-December.

In the center of the facility will be two huge storage tanks. One, weighing 30 tons, will hold a maximum of 13,000 gallons of super-cold liquid hydrogen. A smaller tank will contain liquid nitrogen.

Fanning out from the tank area is an overhead system of stanchions supporting all fuel, oxidizer and utility lines. For instance, pipes will carry liquid hydrogen, liquid nitrogen, electricity, water, vacuum lines, compressed air, helium and gaseous nitrogen.

Because both liquid hydrogen and liquid nitrogen are cryogenics and remain in super-cold state, special provisions are made for their transfer. Piping through which these materials flow is vacuum jacketed or heavily insulated to prevent excess "boil off." Special graphite expansion mounts are located at key points.

There are seven major test slabs. Each slab and the floors of test buildings are both non-sparking and static disseminating.

At one end of the stanchion system is the facility's largest structure, an instrumentation building. It will house major facilities for instrumentation, offices, rest room, a special indoor test cell and a storage area. Attached to one side is a large patio-type area in which other tests may be performed.

A cryotherm blockhouse with eight-inch-thick walls is located in another area. A nearby components building rounds out major site structures.

Site "B" includes some 21,500 square yards of AC paved area completely fenced. It is in a canyon area just off the main Center access road.

Astro's plant engineering department designed the facility and has supervised its construction by the L. J. Ninteman Co. Al Ward is the Astro field engineer; Wes Muse the project engineer.

General Dynamics owns the 2,420-acre Test Center located just north of the government-owned and Astro-operated Sycamore Canyon site (**GD/NEWS**, Aug. 8, 1963).

Scheduled for development over a period of years, the Test Center will allow Astro to centralize its now scattered test program with room for expansion in future years. Original master plans adopted for the area called for facilities in which to conduct liquid hydrogen, systems, propulsion and exotic propellant tests.

Nearby on Test Center property will be a new Redeye missile final assembly and test facility to be built and operated by GD/Pomona. A contract has been issued for grading of this site and its access road. Building contracts are expected to be issued soon (**GD/NEWS**, Oct. 21).

GD/Pomona now expects to employ a maximum of 25 persons (by late 1965) at the facility.

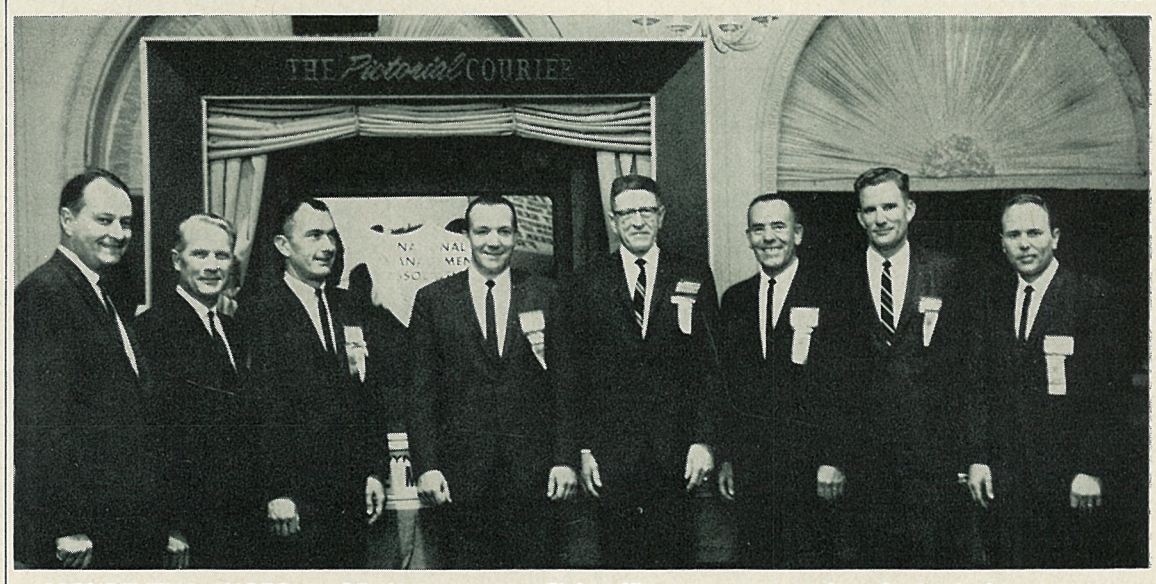
Redeye on Display At Army Gathering

Redeye, world's smallest guided missile system, is on display at the annual meeting of the Association of the U. S. Army in Washington, D. C. The three-day convention ends today (Nov. 18).

GD/Pomona's exhibit featuring Redeye is sharing booth space with Canadair.

Redeye, a shoulder-fired missile system, was developed for the Army and Marine Corps.

A GD/Convair display features movies of its new Charger multi-mission plane.



PRESIDENTIAL PHOTO — GD Management Club officers are pictured at St. Louis for recent convention. Left to right: John Payne, GD/FW, Zone B vice president; Ralph Bauman, Astronautics, Zone A director; Don Slingsby, Astro club president; Paul M. Neuman, GD/Electronics (Rochester) club president; R. Arch Dutton, GD/Pomona club president; William J. Wood, GD/Convair club president; F. B. Thompson, GD/FW club president; and Bob Keltner, GD/Vandenberg club president.

Astro Management Club Backs 'Christmas in Mexico' Trip

"Christmas in Mexico," a specially-arranged two-week holiday trip into the neighboring country, is sponsored for all General Dynamics people by Astronautics Management Club.

Tour dates are from Dec. 19 to Jan. 3.

James Hardison of Convair will conduct the trip which will follow, for the most part, the route of his summer tours to Mexico, which have proved popular with GD travelers during the last four years.

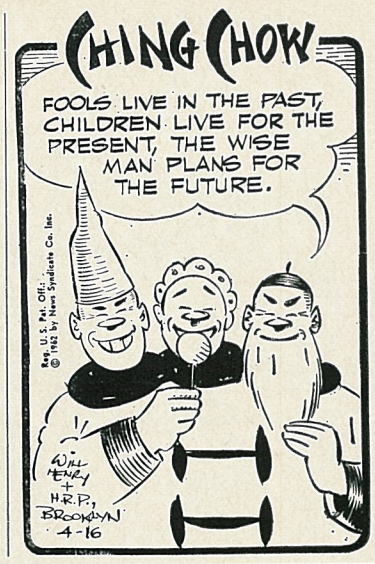
Interested persons may see a slide showing in color of cities and sights in store on the Mexican tour, Nov. 27 at 7:30 p.m. in ARA Clubhouse, Room A.

Departure will be from Mexicali on an air-conditioned train. Two days are reserved for sightseeing in Guadalajara. Christmas will be celebrated with a traditional pinata party in Mexico City during the five days there. Side trips around the capital will take the tourists to Xochimilco, Chapultepec Castle, University of Mexico, Pyramids. A day in Taxco and two in Acapulco will follow before the return trip home. New Year's Day will be highlighted with a party on the train.

Entire cost is $365 for transportation, hotel accommodations, most meals, and sightseeing. Financing can be arranged through Bank of America, if desired.

Reservations and ten per cent of the charge must be submitted by Nov. 30.

For details and reservations call Bob Emerson, Astro main plant, ext. 2335, or Hardison, home phone, 276-5805.



'Needle in Haystack' Technique To Serve NASA's Lewis Research

A technique which can literally "find a needle in a haystack" (without disturbing the stack in the process) is being applied to the nation's space programs by General Atomic division.

The technique, called neutron activation analysis, is being used by General Atomic for oxygen identification in alkali metals, under contract to NASA's Lewis Research Center. The method involves spectrometric examination of energy released by chemical elements which have been exposed to neutron radiation.

Lewis Research Center is presently studying liquid metals whose excellent heat transfer properties make them superior working fluids for space power systems. Potassium and other alkali metals which are liquid within a few degrees of room temperature are slated to play a key role in future spacecraft needing megawatt electric power plants on board.

General Atomic's neutron activities analysis is used to determine the amount of oxygen present, since oxygen contributes a corroding effect to the liquid metals.

Activation analysis can now pinpoint as few as three oxygen molecules hidden among a million molecules of potassium!

General Atomic credits activation analysis with making oxygen determinations faster, more precisely, non-destructively, and with better sensitivity—with almost an order of magnitude in precision and sensitivity—than was possible a year ago.

Besides the space agency, General Atomic reports that manufacturers of high-purity steel and alloys have expressed interest in rapid, accurate oxygen content determination, since oxygen in steel is important to its strength, ductility and durabiliy.

Activation analysis techniques have been used in archaeology to provide precise dating of prehistoric relics; in criminology their results have been admitted as court evidence and used in at least one murder conviction in Canada.

In a recent activation analysis on a strand of Napoleon's hair, they gave credence to an historical suggestion of foul play in the exiled emperor's demise. The spectrometer clicked up a score of 15 times the healthy arsenic content!

Annual Flower Show Attracts Big Entry List of Fall Blooms

An Astro man and a Convair woman were singled out for special honors for their exhibits in General Dynamics' annual Fall Flower Show which displayed 310 entries and drew several hundred spectators to the Floral Association Bldg. in Balboa Park on Nov. 1.

Arnold Carroll's large white single chrysanthemum won him the ARA best bloom trophy. He is in Astro Dept. 141-2. LeVonne Splinter of Convair Dept. 2-0 was recognized on the Ona Mae Carroll Memorial plaque for an artistic arrangement of yellow pompons, sour dock, cattails in a hammered copper bowl.

ARA Commissioner Everett Henderson, CRA Commissioner E. L. Zimmerman and Convair's acting commissioner, Henry Boyd, were in charge of the annual showing.

Best of show winners were: Carroll, Zimmerman (Convair Dept. 131), Boyd (Convair Dept. 141), Anna T. Cunnion (Convair Dept. 131), Carolyn Buman (Astro Dept. 512-0), Mrs. Splinter, Janice Zimmerman, 13-yr.-old daughter of Commissioner Zimmerman.

First, second, third places in individual classifications went to:

Single large mum: White—A. Carroll, J. E. Henderson, A. Carroll; Pink—H. S. Boyd, A. Carroll, E. L. Zimmerman; Red—H. S. Boyd, A. Carroll; Yellow—H. S. Boyd, A. Carroll, J. E. Henderson; Lavender—H. S. Boyd, A. Carroll, Grace Zimmerman.

Three large mums: White—A. Carroll, A. Carroll, H. S. Boyd; Pink—A. Carroll, E. L. Zimmerman; Red—H. S. Boyd, E. L. Zimmerman, A. Carroll; Bronze—Ray Sharman; Yellow—H. S. Boyd, A. Carroll, Margaret Boyd; Lavender—E. L. Zimmerman, Ray Sharman, Grace Zimmerman.

Three pompons-cushion: White—H. S. Boyd, C. H. Splinter, John Volper; Pink—A. Carroll, Dennis Zimmerman, Ray Sharman; Yellow—C. H. Splinter, A. Carroll, Carolyn Buman; Bronze—Anna Cunnion, C. H. Splinter, LeVonne Splinter; Lavender—C. H. Splinter, Anna Cunnion, Carolyn Buman.

Pompon daisy: White—J. R. Buman, E. L. Zimmerman, Grace Zimmerman; Pink—Ray Sharman, LeVonne Splinter, Mary Short; Red—Carolyn Buman, Mary Short; Bronze—John Volper, Ray Sharman, Janice Zimmerman; Yellow—C. H. Splinter, J. R. Buman, T. J. Cunnion; Lavender—Ray Sharman.

Button mums: 1 stem—H. S. Boyd, A. Carroll, T. J. Cunnion; 3 stems—A. Carroll, H. S. Boyd, J. R. Buman; 6 stems—H. S. Boyd, A. Carroll, A. Carroll.

Arrangements: Miniature—Bill Spann; Low—Helen Spann, Anna Cunnion, Norman Bradshaw; Medium—Madeline Volper, Grace Zimmerman, Norman Bradshaw; Tall—LeVonne Splinter, Madeline Volper, Carolyn Buman; Dry—Margaret Boyd, Carolyn Buman, Marjorie Hornsby; Artificial—Madeline Volper.

Children's: Both age divisions—Janice Zimmerman.

Roses: Red — Carolyn Buman, Ray Sharman, Mrs. Felix White; Yellow—Felix White, Mrs. White, H. S. Boyd; Pink — Mrs. White, Grace Zimmerman, Mrs. White; Granada—Carolyn Buman; Felix White, Mrs. White; White — no first place, Mrs. White, H. S. Boyd; Orange—Mrs. White, Carolyn Buman, H. S. Boyd; Mauve—Mrs. White, Ray Sharman, H. S. Boyd; Montezuma—H. S. Boyd, Mrs. White, Felix White; Peace—Mrs. White, H. S. Boyd.

Corsages: Tropical—Bill Spann, Carolyn Buman; Chrysanthemums — Carolyn Buman, Helen Spann, Bill Spann; Other Flowers—Ken Spann, F. H. Baldwin.

Industrial Tourney Dominated By General Dynamics Bowlers

General Dynamics' keglers took top spots in the annual Industrial Recreation Council bowling tourney the weekend of Nov. 7-8, winning first in both men's and mixed divisions and individual men's series and game scores and individual women's series.

Twenty-three of the 84 teams competing were fielded by Astro, Convair, GD/E, S-C, and General Atomic. Altogether, 420 bowlers from 16 IRC member organizations took part, said Mike Brooks of Astro, tourney manager.

Astro's Team No. 5, captained by Forest Erwin, rolled 2,785 pins for high handicap score in the men's division. Other team members were Erwin's son, Mike, Bert Lee, Tony Zullo, and Bob Lange.

"Misfits," a combined Convair-Astro team captained by Brooks, won the mixed division with 2,620 total pins. The same five won the mixed division title five years ago, the first year they competed, but had been just in the running ever since.

Members were Brooks and wife, Frances, Bill and Evelyn Carson, and George Lange.

Two Astro teams also were in the money. "Hotshots," led by John Sentovic, was third in men's division and "Ifs," captained by Larry Atwell, fourth.

Davidson Bros. five-man team was fifth. Members were John Adams, captain; Don Stewart, Alex Kuhnel, Bud McLaughlin, Bob Pearson.

Evelyn Carson of Convair was high for individual ladies' series score, 538 scratch. Zullo won high individual men's honors in both scratch game (279) and scratch series (666).

Trophies were presented at the awards dinner at El Morocco Restaurant last Saturday night.

Income Tax Class Planned

A subject close to the heart, or checkbook, of all wage-earners—how to prepare income tax returns—will be taught in a three-session course at GD/Convair, starting Dec. 1 under sponsorship of Convair educational services.

The class meetings, open to all General Dynamics people as well as the general public, will be Dec. 1, 8, and 15 from 4:30 to 7 p.m. Registration will be made at the first class at Convair Plant 1, Bldg. 14, Room 8. Enrollment fee is $2.

Instructor is Gerald V. Baughman, formerly with Convair accounting department, who has operated his own tax practice the last ten years.

He will cover six topics—What is Income?, Income Exclusions, Dependents, Itemized Deductions, Calculation of the Income Tax, Conversion from Federal to State.

The course is offered as a part of the adult education program of the Hoover Adult High School.

A similar course in income tax preparation will be presented for Convair Management Club members in January.

Richard Ellis Wins In Junior Shooting

Richard Ellis garnered the National Rifle Association championship medal for his performance at Astro Junior Rifleers club championship matches held Oct. 31 at CRA Gun Range.

Ellis outshot all young Astro and Convair marksmen competing.

Rod Lemley was first and Mike Frazier, second, in Class A. Bob Eaton was winner in Class B and Doug Andrews, runner-up.

Cary Nichols topped Class C and Don Galyardt won Class D.

In the tyros class for beginners Paris Hoffman was first and Barbara Esparza, second.

Junior Rifleers will shoot it out in a turkey match this Saturday (Nov. 21).

Garden Club Plans Christmas Party

Garden club members from Astro and Convair and their families will stage a Christmas party especially for the youngsters on Wednesday (Dec. 2) in Balboa Park's Floral Association Bldg.

Meeting time has been set up to 7 p.m. for the benefit of the children with early bedtimes.

Santa Claus will have treats for the small fry and adults will exchange gifts, men for men, women for women, etc. A wide range of door prizes will highlight the drawing. There will be turkeys, plants, pottery for lucky number holders.

Junior Science Club Sessions Planned

General Dynamics youngsters and their friends are welcome to participate in activities of ARA Junior Science Club, whose educational programs are designed to appeal to the 10 to 18-year age bracket.

Nov. 20 at 7:30 p.m. the group will meet at Mission Bay High School for a program, "Graphic Arts in Motion."

Physicist Carl J. Schultz of GD/General Atomic's experimental physics department, will discuss "Atomic Energy" at a Dec. 4 session, 7:30 p.m. in ARA Clubhouse.

Details on the group and its functions are available from Keith Sears, Astro ext. 2328.

Volunteers Sought To Restore Plane

A call is out for volunteers to help restore a Convair-built XF2Y-1 Sea Dart for display in the San Diego AeroSpace Museum in Balboa Park.

The experimental delta-wing jet seaplane built by Convair over 10 years ago is stored at Fisher Aircraft Co. where restoration work will be done. It was donated to the Museum last year by the Navy.

Anyone wishing to donate time to the project is asked to contact Mrs. Ruth Staley at the Museum, phone 234-8291.

Enrollment Date For State Dec. 15

General Dynamics employees planning to enroll in late afternoon and evening courses at San Diego State College during the spring term are reminded that admission or readmission deadline is Dec. 15.

Students who were not registered during the fall semester must be formally admitted and have a registration priority before entering spring classes.

Information is available from the college admissions office, 284-6871.

Suggestions Turned Into Cash Awards

Two Convair men substantially boosted their incomes this month with significant Employee Suggestions which paid off handsomely on first go-around with a chance to double their take in six months.

R. W. Talmage, Dept. 119 leadman, received a total of $169.24 for two ESs suggesting the use of salvage honeycomb core in stock for 990 and F-102/F-106 spares flaps. Savings on 990 spares will be re-evaluated in six months.

M. M. Wood of Dept. 14 earned $96.27 in partial payment on a suggestion which changes material and method of fabricating shipping boxes for C-141 parts. His ES also will be reopened for re-evaluation of savings in six months.

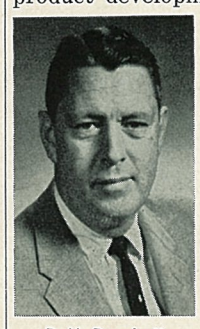
WEIGHT ENGINEERS WILL MEET NOV. 19

San Diego chapter, Society of Aeronautical Weight Engineers (SAWE) will meet tomorrow (Nov. 19) at the Catamaran Hotel to hear Eric Propper of Revere Corp. discuss "Mass and Force Measurements." Social hour begins at 6 p.m., dinner promptly at 7.

"Hello! Ajax Lumber Company?"

PROPHETT DIRECTS ADVANCED PRODUCTS

P. M. Prophett has been appointed director of advanced product development at GD/Convair, effective Nov. 2, C. W. Frick, vice president-engineering, announced.



P. M. Prophett

Prophett, who joined the company at Convair in 1942, directed activation of operational Atlas bases for Astronautics and, more recently, has held the post of Astro director of special projects in systems development department.

Before joining Astronautics in 1961 he was assistant chief engineer-flight test at Convair. Prior to that he had headed Convair's F-102 flight operations and served as chief of engineering flight test from 1955 to 1957.

In his new assignment he will head up Convair advanced product development activities.

Reporting to him are the following requirements engineers: J. R. Burtt, USAF and NASA; W. R. Lee, Army; R. L. Runnalls, Navy; H. J. Richardson, USAF; R. L. Wintringer, commercial projects and foreign sales; and W. D. Wood, Navy.

Annual Game Contest Opens

Annual big game contest is open now for all General Dynamics nimrods who have bagged the big, big ones this season.

Entry forms to establish eligibility in the drawing for valuable prizes, set this year for Dec. 8, now are at all employee services and industrial relations outlets at Astro, Convair, GD/Electronics, and Stromberg-Carlson.

All GD employees and members of their families have a chance in the drawing sponsored yearly by CRA and ARA. The number and value of the prizes depend upon the number of entries turned in before drawing date.

Any larger game animal, such as elk, moose, deer, bear, javelina, may be entered. Type of game, date of shooting, weapon used, total points and spread, weight, location of shooting, license number, and witness' name must be included on the application forms.

Details may be obtained from CRA Gun Club Commissioner Jack Swank, ext. 580, Plant 1, or ARA Commissioner Ezra Johnson, ext. 3388, Astro Plant 71.

Salvage Schedule Set For Month

Salvage yard schedule at Convair and Astro sites for the next four weeks is:

Convair—Nov. 21, Dec. 5.

Astro—Nov. 28, Dec. 12.

CRA Calendar

(Convair Recreation Association has some 30 activities in operation for Convair, GD/E, Stromberg-Carlson people. For information call CRA Headquarters, ext. 1245.)

★ ★ ★

AEROMODELERS — Flying sessions Saturday and Sunday mornings, 8 a.m. to 1 p.m., Clairemont Mesa flying site.

BASKETBALL — City League pre-season tournament tentatively scheduled to open next week.

COIN CLUB — Meeting tomorrow (Nov. 19), 7:30 p.m., Convair cafeteria, Pacific Hwy.

FENCING — Workouts and instruction each Friday, 7-10 p.m., YWCA, 10th & C Sts.

GARDEN CLUB — Family Christmas party Dec. 2, 7 p.m., Floral Association Bldg., Balboa Park.

GOLF—CRA turkey shoot, Saturday (Nov. 21), Coronado course.

GUN CLUB—Annual big game contest now open. Entry forms at all GD employee services outlets. Drawing Dec. 8.

ICE SKATING — Thursday ice skating sessions for GD people, Mission Valley Ice Plaza, 6:30-8 p.m.

JUNIOR RIFLEERS — Turkey shoot, CRA range, 8 a.m., this Saturday (Nov. 21).

MODEL RAILROAD — Work nights, Fridays, 7:30 p.m.; open sessions, Sundays, 1-4:30 p.m., House of Charm, Balboa Park.

MOVIES — Reduced prices for GD people at State Theater, Euclid and El Cajon Blvd. General admission: adults, $1; children, 35¢.

PISTOL CLUB — Club shoot 9:15 a.m., Nov. 22, San Diego Police Pistol Range, Federal Blvd. and Home Ave.

RADIO CLUB — No meeting Thanksgiving Day (Nov. 26).

RIDING CLUB — Thanksgiving trail ride Sunday (Nov. 22) from Peppertree Stables, Santee. Annual Christmas party Dec. 5, Gillespie Field Clubhouse.

ROAD RUNNERS — Meeting tomorrow (Nov. 19), 7:30 p.m., Gillespie Field Clubhouse.

SNOW SKI CLUB — Annual Sno-Ball this Saturday (Nov. 21) 8 p.m., U. S. Grant Hotel. Tickets at Convair employee services. Ski equipment swap night Nov. 23 ARA Clubhouse. Free dry-land ski instruction Nov. 22, Dec. 6, 1-3 p.m., Balboa Park Conference Bldg. CRA club meeting Dec. 1, 8 p.m., Catamaran Hotel.

SPORTS CAR CLUB — Business meeting and rally Dec. 2, 7:30 p.m., Convair cafeteria.

STAMP CLUB — Meeting Dec. 3, 7:30 p.m., Convair executive dining room.

Club to Nominate Officers For Year

CRA Coin Club members will nominate officers for the coming club year at tomorrow night's (Nov. 19) meeting, 7:30 p.m., in the main Convair cafeteria, Pacific Hwy.

A 1902 five-dollar gold piece, worth approximately $30, will be up for grabs in the raffle. Two coin medals will be given as a door prize. An auction and refreshments will complete the evening.

SKIERS CLOSE WATER SEASON

Water skiers at Convair have closed down activities for the fall and winter months, Gene Sevigny, CRA commissioner, announced. During the summer the CRA group has been skiing weekends on Mission Bay when there was enough demand to take the boat out.

GOLFERS TO PLAY CORONADO COURSE

GD/Electronics and Stromberg-Carlson golfers will meet for the GD/E Men's Golf Club semi-monthly tournament on Sunday (Nov. 29) at Coronado course. Tee-off time is 8 a.m., said Ernie Paul, club president.

SKIERS RESERVING PLACES FOR JAUNT

CRA skiers have until Friday (Nov. 27) to reserve places for the first snow ski outing of the season over the weekend of Dec. 5-6 to Mammoth Mt.

Convair, GD/E, S-C people looking forward to their first taste of snow must sign now with Commissioner Joe Harris, home phone, 284-0278.

The package price of $20 per person pays for round-trip transportation, two nights lodging in the ski chalet reserved for the combined CRA-Don Diego club, and a Saturday night steak fry.

There is still time to purchase tickets to the annual Far West Ski Association Sno-Ball set for this Saturday night at U. S. Grant Hotel. Tickets ($1.50) for members and guests may be obtained at Convair employee services.

Next club meeting is Dec. 1 at Catamaran Hotel, Mission Blvd., 8 p.m. Movies, door prizes, and dancing are on the program.

Leatherneck Bowl Tickets Available

Reserved seats at $2.50 and general admission ($1.50) tickets to the Seventh Annual Leatherneck Bowl game this coming Sunday (Nov. 22) still are on hand at Convair employee services.

The annual football game pits San Diego Marine Corps Recruit Depot against the Pensacola Naval Air Station team.

Net proceeds will go to Navy Relief at each of the two participating service installations and to the San Diego United Community Services.

Price Break Offered On Charger Tickets

Charger fans still have a chance to see the Thanksgiving Day home game against Buffalo Bills at reduced price if they get their tickets through plant employee services.

Regular $3.50 reserved seats are on sale at $2.50 at Convair, GD/E, and Stromberg-Carlson outlets.

Tickets to the next home game on Dec. 6 against New York Jets also will be available.

Switching Center Now in New 'Home'

Switching center operations at San Diego were relocated the first of last week onto the second floor of Bldg. 5, within Plant 1.

Western Union equipment for the local wire message center has been installed in the area formerly occupied by the steno-typing pool.

R. I. Morse, GD West Coast wire communications assistant, is occupying offices recently vacated by M. L. Tombler, office services supervisor.

All extensions remain the same. Morse's extensions are 2025/2026 and the switching center, ext. 2003.

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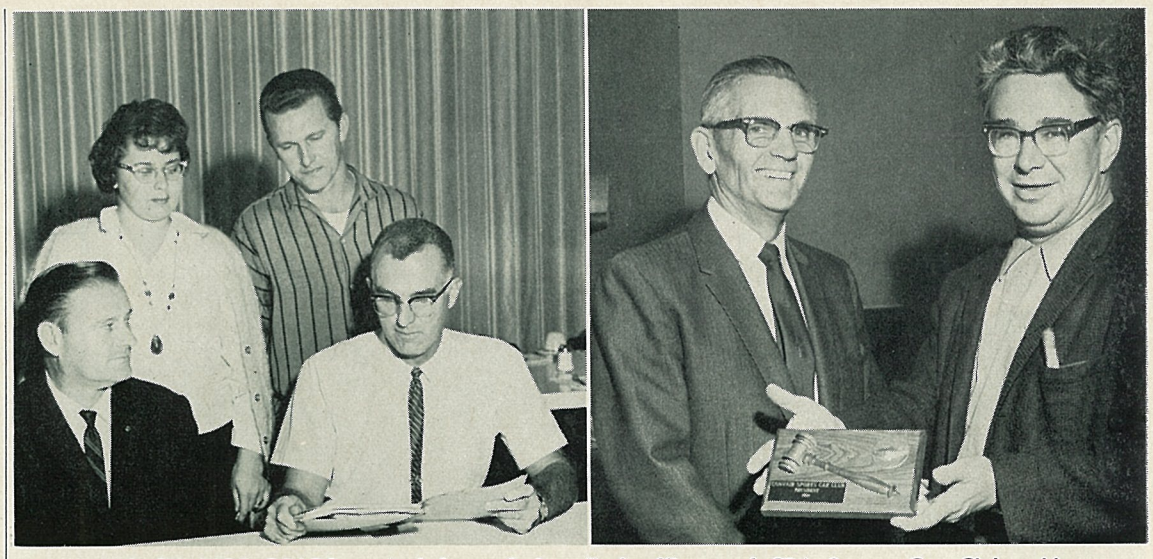
Services Functions Shifted to Bldg. 51

M. L. Tombler, Convair office services supervisor, and all functions under his responsibility with the exception of the engineering library, have been relocated to the third floor of Bldg. 51 at Plant 1.

Engineering security, steno-typing pool, engineering mail-room, wire service and teletype service are along the north aisle of Bldg. 51 in 3-F and 3-G areas. Phone extensions remain the same.

Engineering library remains on the second floor of Bldg. 5. However, open hours for the library and the engineering vendor file have been changed. Engineering library now is open for use from 10:30 a.m. to 4:30 p.m.; engineering vendor file, from 1:30 p.m. to 4:30 p.m.



DRIVERS CHANGE GEARS — At left newly-installed officers of CRA Sports Car Club taking over driver's seat of group at first meeting of new term Nov. 4 are (seated) Clark Kerr, vice president, and A. C. Oehler, president. Standing are Carol Backus, secretary, and husband Charles, treasurer. In photo at right Bob Chillo (right) accepts plaque from CRA Commissioner Gerry Wright as memento of his term as club's president last year.

Horsemen Combine Party With Tribute

CRA horsemen combined their annual Halloween party with a tribute to Riding Club member, Turner Albright, on his retirement from Convair Dept. 93, when they gathered Oct. 31 at the sports car shop, Gillespie Field.

Albright was given a western belt and musical rocking chair toy.

Forty danced to the strains of the Riding Club Combo and enjoyed the buffet arranged by Peggy Albright. Betty and Luke Barbour chairmanned the affair.

Members will meet at Peppertree Stables in Santee this coming Sunday (Nov. 22) for a Thanksgiving trail ride through Eucalyptus Hills. Ladies will serve a turkey dinner later in the day.

The club's annual family Christmas party will be Dec. 5 at Gillespie Field Clubhouse.

Pete Beyrer Honored For Work in Baseball

Pete Beyrer, CRA representative at Convair, was honored at the Hot Stove League annual awards banquet Nov. 4 for the many hours he has devoted to sandlot baseball.

Beyrer was presented with the annual Accomplishment Award for his work with young ball players. A pro ball player himself before joining Convair in 1940, Beyrer has devoted a great deal of his time since in the encouragement and coaching of sports for the youth of the community.

The last 15 years he has been directly connected with most of Convair's recreational activities, including Little League, softball, baseball, volleyball, model railroad, table tennis—to name a few.

Halfacre Overtakes Rival in Matches

Jim Halfacre turned the tables on Commissioner Joe Williamson to take the lead in both .22-cal. Police Course and center-fire Short National at CRA Pistol Club's Nov. 8 matches.

Halfacre shot a 290 to nose out Williamson by one point in master division of the Police Course. W. G. Walker was first in expert division with 282. Jim Mardis shot a 275 for second place; Dale Young was third with 273.

Halfacre and Williamson tied with 267s in the Short National but Halfacre's five bull's-eyes, to Williamson's four, gave him first place. Walker was third with 248.

HAMS DEFER TO TURKEY DAY

CRA hams will cancel their next regular meeting so that they can enjoy turkey day with their families. The Radio Club's monthly session, which would fall on Thanksgiving Day, will be cancelled altogether, said Commissioner Jim Lack. Next meeting will be the second Thursday of next month, Dec. 10, at the club's Harbor Drive headquarters.

Sports & Recreation

LINKS CHAMPS — Top golfers in CRA's annual plant championship tourney are (from left) A. J. "Jack" Johnson, third flight winner; Ralph Montgomery, second flight; Ed Hansard, fourth flight; and George Kureri, first flight.

Convair Son Wins Punt-Pass Contest

Eight-year-old Mark Wulfemeyer, son of Convair's Ken Wulfemeyer, personnel services coordinator, is heading for a career on the gridirion if his recent prowess in the Ford Company's Punt, Pass and Kick contest is any indication.

Mark outpunted, outpassed, and outkicked all in his age group to take the zone contest in San Diego County and went on to win the district competition at Anaheim Oct. 31.

Last report was that he had won the area contest and would compete with other area champs at last Sunday's Rams' game in Los Angeles.

Some 50,000 boys competed in the Los Angeles District alone. Twelve selected for national championships will go to Washington, D. C., to meet the President of the United States.

Secret Rendezvous Chosen For Drivers

Sports Car Club members at GD/Convair will join in a rally to an undisclosed destination after the business session at their Dec. 2 meeting, 7:30 p.m., Convair cafeteria.

Tom Kienholz, rallymaster, has laid out a route that will take an hour to cover. Cars will leave the Bldg. 19 parking lot and follow specified landmarks to the finish line, which will be at some restaurant in the area for refreshments to wind up the evening.

The rally, arranged to make it easier for novice drivers, will require no navigation calculations. Everyone should be equipped with flashlights, clipboards, and pencils.

Kureri, Hill Lead Golfers

George Kureri of Dept. 401 and Marion Hill (Dept. 400) placed first and second in the first flight of CRA's 23rd annual plant golf championship held Oct. 3, 24, and 31 at Bonita Valley Country Club.

Second flight of the 1964 match play was won by Ralph Montgomery (Dept. 42). Len Therrien of Dept. 115 was runner-up.

Jack Johnson (Dept. 6) topped third flight. Runner-up was Tobe Hundley of Dept. 400.

Fourth flight was won by Ed Hansard (Dept. 6). Eric Torp of Dept. 91 came in second.

Next CRA links event will be the annual turkey shoot Saturday (Nov. 21) at Coronado, said Commissioner Ken Wulfemeyer. Entries closed Nov. 11.

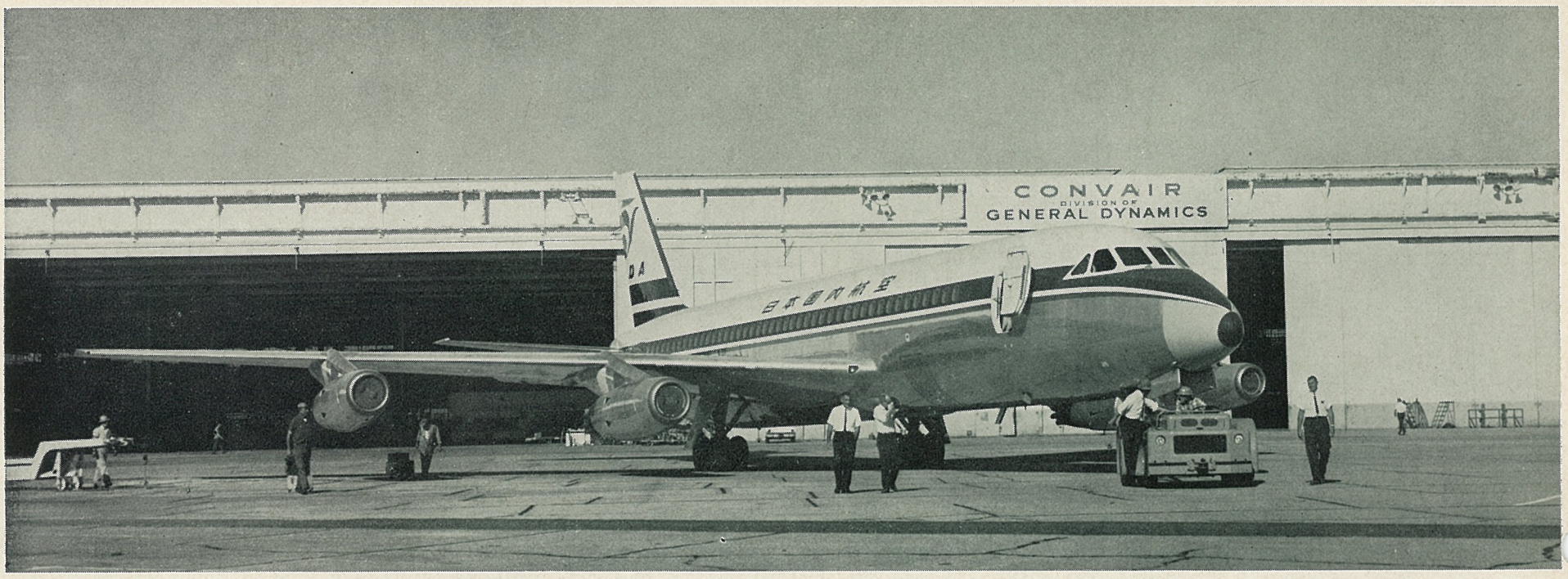
Ski Trading Night Scheduled Monday

Annual ski trade night for all skiers in the San Diego area will be held next Monday night, (Nov. 23) in the ARA Clubhouse at Astro's main plant. Hours are 6:30 to 10 p.m.

The swap session is sponsored by the six clubs, including CRA and ARA groups, included in the San Diego Council Far West Ski Association. It gives beginning skiers an excellent opportunity to outfit themselves inexpensively, and others a chance to dispose of extra and outgrown equipment.

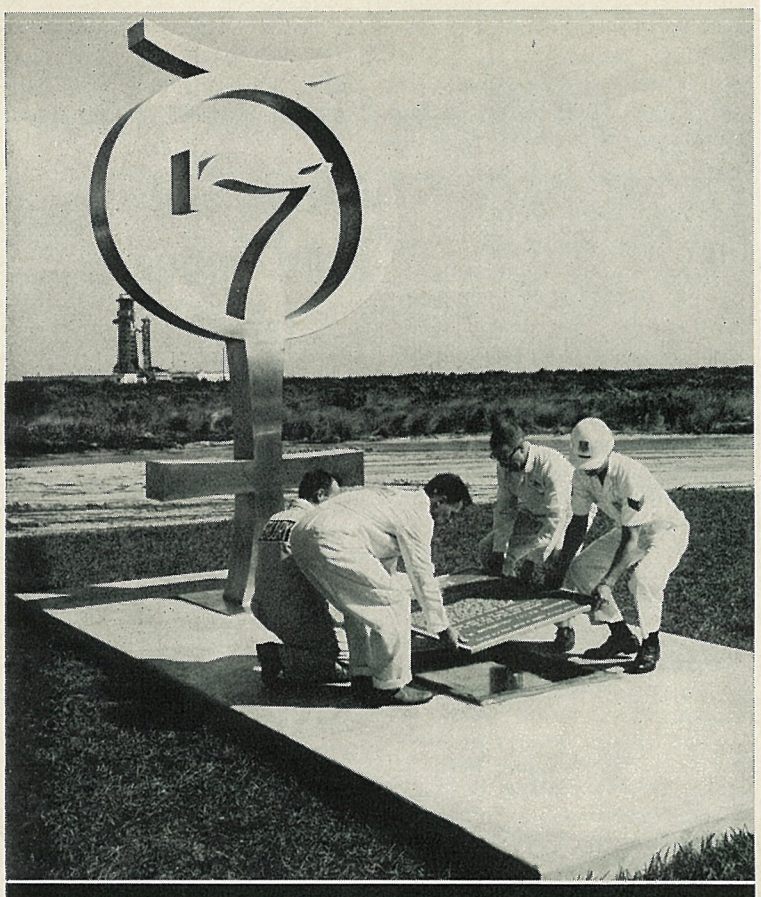
Only charge is 10 cents for each item offered for sale or trade to defray expenses.

Tibor Lody of Astro is chairman of the trade night, held for the second time this year. He may be reached at his home phone, 273-2379, for further details.



JDA ROLL-OUT — Convair 880-M bearing colorful stripings of Japan Domestic Airlines, subsidiary of Japan Air Lines, rolls out of final assembly at San Diego early this month to be readied in field operations for delivery after first of year. Trans World Airlines took delivery on Convair's first 880 the end of October.

DART-CONVAIR—Retouched photo shows new Rolls-Royce Dart R. Da. 10 propjet engine on 240-D Convair - Liner. General Dynamics' Convair division and Rolls-Royce Limited jointly have announced go-ahead on modernization program to install Dart propjet engines on 240 aircraft. Total of 35 orders have been placed — 25 by Trans-Texas Airways, Inc., and 10 by Central Airlines, Inc. A 240 Convair - Liner is now in works at San Diego as prototype.



FOR POSTERITY — With Complex 14 from which Atlas-boosted Project Mercury flights originated in background, C. J. Heckelmoser (NASA), left, H. H. Packer and T. L. Bartlett, both GD/Astro, and S/Sgt. C. R. Rohrs (USAF) lower "time capsule" into base of Mercury monument dedicated Nov. 10 at Cape Kennedy. S. B. Hodge, GD/Astro manager of art direction, designed 13-foot high stainless steel monument. Lower photo shows details of medallion with bas relief faces of seven original astronauts. It is mounted on monument base. General Dynamics donated monument to U.S. government.

Proj. Mercury Monument at Cape Unveiled

A monument to the free world's first venture into space was unveiled last week at Cape Kennedy, as a tribute to the government-industry team whose achievements comprised Project Mercury, and as a gift to the American people from General Dynamics Corporation.

The monument, a 13-foot high re-creation in stainless steel of the astronomical symbol for the planet Mercury, was unveiled in the presence of nearly 200 leaders from government, industry and the scientific community—including two of the Project Mercury astronauts—Walter Schirra and Gus Grissom.

General Dynamics President Roger Lewis, introduced by J. R. Dempsey, president of GD/Astronautics, presented medals reproducing the bas relief medallion, bearing likenesses of the seven astronauts (mounted on the monument base), to Dr. Edward C. Welsh, acting chairman and executive secretary of the National Aeronautics and Space Council.

Dr. Welsh will deliver one of the medals to President Lyndon B. Johnson on behalf of the Corporation. Lewis presented other medals to major figures in the Mercury program.

In his keynote address, Dr. Welsh referred to Project Mercury as "a symbol of effective government-industry teamwork" which "reveals how vital elements of a free society can join together to meet major challenges and to meet them successfully."

"General Dynamics Corporation is to be complimented," he said, "for its public service in erecting and donating this Mercury monument. It will stand as a reminder to us all that there is much more to be done and to be done well."

People Mobility

Former E-B Engineer Named To Marine Systems Office

HARRISON T. LOESER, formerly supervisory engineer in Electric Boat division research and development, has been transferred to Corporate Headquarters, reporting to Edward H. Heinemann, vice president engineering and program development. He will be responsible for marine systems in the Heinemann organization which also includes electronic systems (Jack L. Bowers); missile and space systems (Gene L. Armstrong); industrial products (Don E. Kidder).

At the time of organizing the various specialty offices, attention was called particularly to the Industrial Products Office, aimed at properly recognizing and exploiting product "fallout" from systems-oriented divisions with a view to industrial development and sale.

Loeser joined E-B in 1953 after approximately seven years with Bethlehem Steel Shipbuilding at Quincy, Mass., where he designed many types of surface ships. A 1943 graduate of Webb Institute of Naval Architecture and with a master's degree from M.I.T., Loeser saw WWII Navy duty as a ship superintendent at Pearl Harbor.

* * *

JOHN M. KUDA has joined the controller's staff at Corporate Headquarters, reporting to James Sowers, director of cost analysis, as a cost analyst. A University of Connecticut graduate (1950) with an M.B.A. in marketing from Wayne State U., Kuda was with Ford Motor Co. for six years, subsequently with Curtiss-Wright and most recently, controller for C. J. Bates and Son, Inc.

* * *

DAVE ROBERTSON, formerly staff assistant to Corporate Assistant Controller Robison Clark, has been promoted to executive assistant, reporting to Corporate Secretary John P. Maguire.

A George Washington University graduate (BA, accounting), Robertson is a C.P.A. and has been a fiscal accountant and budget analyst for the U.S. Government. He joined General Dynamics in 1959.

Interdivisional Transfers

(Following are recent personnel transfers among General Dynamics divisions. In parentheses are dates when individuals joined the company.)

PAUL D. ADAMS (1954) Astronautics to Electronics-San Diego engineering; **WOLFGANG H. STEURER** (1958) Convair to aerospace technology, Fort Worth; **EDWIN ZABEL** (1955) from Astro (Schilling) to Electronics-Rochester purchasing; **HUBERT E. ZEHRING** (1959) from Astro to budgets, Convair; **HERBERT J. PEACE** (1961) from Astro (Altus) to Electronics-Rochester photographic lab and operations.

GEORGE E. HENRY (1961) from Astro (Lincoln) to Electronics-Rochester purchasing; **JESUS D. GONZALES** (1950) from Astro to Convair estimating; **CONSTAS P. LECOURIS** (1959) from Astro (Schilling) to Electronics-Rochester project engineering; **ROBERT J. HUGHBANK** (1959) from Astro to industrial security, Fort Worth.

PHILIP M. PROPHETT (1942) from Astro to director of advanced product development, Convair; **GORDON C. PRESTON** (1960) from Astro to program analyst, Electronics-San Diego; **EVERETT J. BREKKE** (1958) from Astro to General Atomic; **DALE M. BROWNELL** (1952) from Astro (Altus) to systems and procedures, Electronics-Rochester.

GEORGE R. BROLASKI (1954) from Astro to Electronics-Rochester production engineering; **WOODROW L. BARNUM** (1960) from Astro to Convair estimating; **CLYDE K. RUTLEDGE** (1955) from Astro to Electronics-San Diego project engineering; **WILLIAM SCHELL JR.,** Electronics-Rochester to Stromberg-Carlson; **GERALD J. BLUMENTHAL** (1958) from Astro to Convair engineering; **OLIN TEVENDALE** from Electronics-Rochester to Stromberg-Carlson; **DONALD K. KERR** (1956) from Astro to Electronics-Rochester cost accounting; **SAMUEL L. SHIPSTEAD** (1952) from Astro to Electronics-Rochester operations; **ELTON H. SOUTHARD** (1954) from Astro (Lincoln) to military products manufacturing, Electronics-Rochester; **JOHN F. CRAWFORD** (1950) from Astro to Convair estimating.

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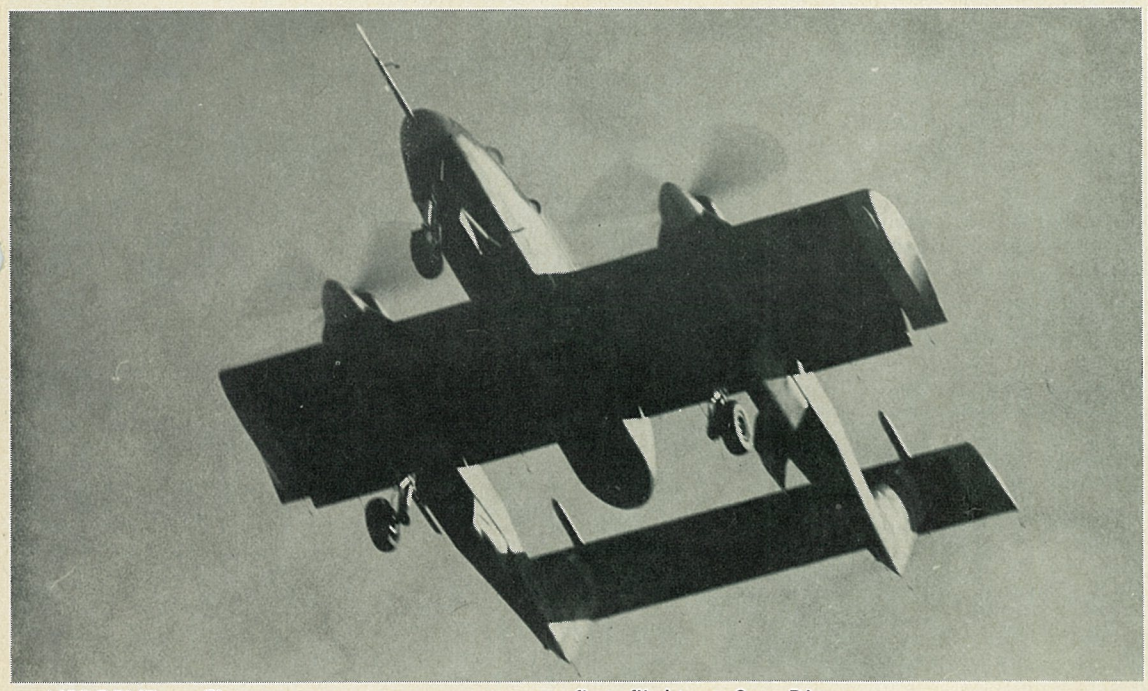
GENERAL DYNAMICS

NEWS

SAN DIEGO EDITION

Vol. 17, No. 25 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, December 2, 1964



AIRBORNE — Charger soars over camera on first flight at San Diego.

Charger 'Smooth' On First Flight

The Charger, first brushfire warplane designed from the drawing board up, made its first flight Wednesday (Nov. 25) just 35 weeks after the start of design engineering at Convair division of General Dynamics.

The twin-turboprop, high-tail airplane, capable of 50-mile-an-hour treetop support missions or 400-mile-an-hour attack dives, at first glance is reminiscent of a twin-boom, World War II fighter, but its spectrum of missions and performance is much wider than designers of that day could achieve with a piston-engine airplane.

First flight of the tiny Charger —under 35 feet in length and with a wing span of 27 and one-half feet—lasted 38 minutes. It took off from San Diego International Airport, flew along the coast between San Diego and the Mexican border and landed, as planned, at nearby North Island Naval Air Station.

After a brief stop at North Island the plane took off, flew for 40 minutes and returned to Lindbergh Field.

Test pilot John W. Knebel called the Charger "a very nimble airplane that was hard to hold back. It showed me a quick, clean response."

Knebel used about 800 feet of runway for the takeoff. On later tests, during which the battle-green Charger will be put through its full performance spectrum, Knebel will lift the Charger into the air in 225 feet with a 2,000-lb. load and land in the same distance.

In these later tests, the airplane also will clear a 50-foot obstacle in less than 500 feet from a standing start.

The Charger is powered by two 650-horsepower turboprop engines, driving two nine-foot propellers. Extra large flaps, extending almost the entire length of the wing's trailing edge, are bathed in the propellers' slipstream to provide maximum lift for short takeoffs and landings.

The new airplane's two Pratt and Whitney T-74 engines are rated among the most reliable small engines now available and these, along with the Charger's flap system, will make the new plane one of the most maneuverable in the air today.

This maneuverability and the large power reserve provided by these engines and such a small, light design make the Charger one of the safest airplanes for close-to-the-ground operation. Good all-around visibility for a pilot and observer, heavy armor plating and an advanced ejection system that will operate at all speeds from 0 to 400 miles an hour are added safety factors of the new design.

Its landing gear has been specifically designed for rugged service off rough fields. The gear has a 20-feet-per-second rate of sink, or, in more common terms, has the ability to take a shock equivalent to a car hitting the ground after driving off a 20-foot ledge at 50 miles per hour. It is rated as five times more resistant to landing gear failures than most military jets in service today.

(Continued on Page 2)

New Dept. Will Control Facilities, Equipment

A new department has been formed at Convair to consolidate all functions involved in control and use of the division's facilities and equipment, according to an announcement by W. R. Bruce, director of operations.

The organization is designated industrial facilities department (Dept. 24) and will be headed by R. D. Marks as supervisor, reporting to Bruce.

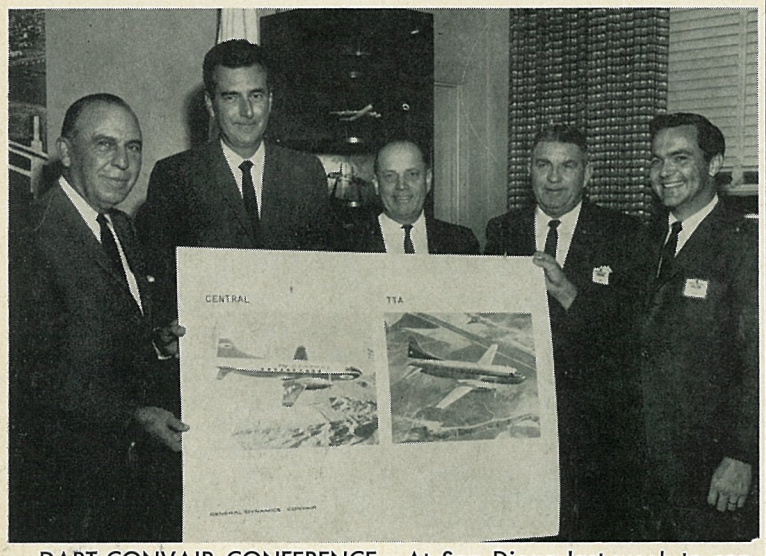
V. A. Petricola will replace Marks as supervisor of manufacturing methods planning, reporting to O. W. Sweetland, superintendent of tooling and methods.

Dept. 24 will combine all facilities planning, acquisition, and control activities, including the master space control function of Dept. 423, manufacturing methods planning, and facilities section of plant engineering (Dept. 25-9).

"The centralization of these activities in one department is an important advance in management planning and should result in significant improvement in the development of facilities essential to the division's current and anticipated programs," said Bruce.

Primary functions of industrial facilities department will be: integrating facilities requirements

(Continued on Page 2)



DART-CONVAIR CONFERENCE—At San Diego last week to consult with GD/Convair officials on modification of 240s flying with Central Airlines, Inc., Fort Worth, and Trans-Texas Airways, Inc., Houston, Texas, to 240-D version were (from left) A. A. Bradford, chairman of Central Airlines board; Irby L. Dyer, Central's general counsel and assistant secretary; GD/Convair President J. H. Famme; Henry E. Erdmann, senior vice president—advance planning, Trans-Texas Airways; and Richard E. McKaughan Jr., TTA executive vice president.

Two More Join Eligibles For '64 CIP Award

Two more Convair men have passed the qualifying mark for eligibility for this year's President's Award and another will probably reach the $25,000 figure in Cost Improvement Proposals before the end of the year.

N. P. Pearson, C-141 empennage foreman, qualified last month with a $59,661 CIP for conversion of the division's automatic Erco riveting machines to handle C-141 skin panels.

L. W. Stamper, Dept. 119 assistant foreman, pushed himself over the required amount with 12 CIPs totaling $28,320 in savings.

E. R. Hockert, Dept. 34 senior buyer, is only $148 short of the required amount after approval of a recent CIP for utilization of surplus test equipment for 880 spares. The $12,755 credited to his account with this CIP boosts his savings total to $24,852.

Others already qualified are Bertha Wilson, Dept. 34, with a savings of $228,306; H. A. Mohr, Dept. 101 assistant foreman and Howard Woodard, Dept. 115 factory specialist, with four joint CIPs totaling $68,842. Mohr and Woodard were last year's President's Award winners.

Although total dollar savings is one of the main considerations in selection of the annual cost reduction winner, other factors figure in final evaluation. These include such considerations as number of CIPs submitted and installed, originality and ingenuity of proposals.

The winner is usually announced by GD/Convair President J. H. Famme at a spring Management Club meeting.

Phone Switchboards On New Schedules

This week telephone switchboards serving GD/Astronautics installations in the San Diego area began operating on new schedules.

Plant 71 switchboards will be in operation from 6 a.m. to 9 p.m. Monday through Friday and from 7 a.m. to 3:30 p.m. on Saturdays.

Plant 19 switchboards will operate from 7 a.m. to 5 p.m., Monday through Friday only.

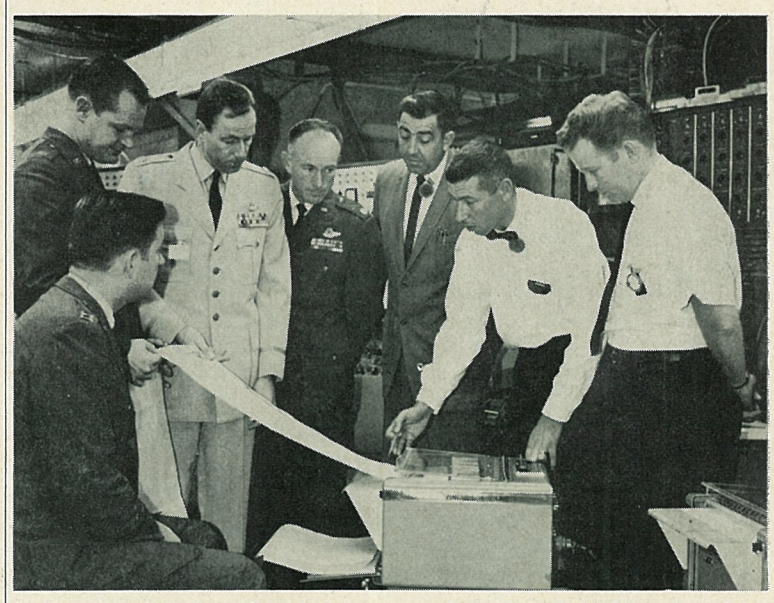
Pilots Indoctrinated In GD/E Terrain Radar

Four Air Force pilots were at GD/Electronics' San Diego plant late last month for indoctrination on the division's terrain following radar.

Simulated TFR flights were "flown" in a Links trainer in the analog computer area and results shown on the computer's read-out devices.

GD/E's radar system is designed to automatically keep a plane on its path, at a predetermined height, above obstacles beneath in zero visibility. It has proved highly successful in extensive testing since its development over two years ago.

AF officers becoming familiar with principles of the system were: Capt. R. E. Nelson and Capt. S. J. Herst, both from Mather AFB, Calif.; Maj. J. W. Ingeman, Griffiss AFB, N.Y.; and Maj. A. B. O'Guin, Biggs AFB, Texas.



TFR "FLIGHT" — Graphic pattern of simulated flights using GD/Electronics' terrain following radar are examined by (from left) Capt. R. E. Nelson, Capt. S. J. Herst, Maj. J. W. Ingeman, Maj. A. B. O'Guin, GD/E's R. F. Schillinger, TFR project engineer; Ellsworth Snyder, GD/E design specialist, and W. C. Eatin, GD/E field service rep, during familiarization program for AF officers.

Want to Share This Christmas? Then Help Border Neighbors

Convair people are asked to join in a "hands across the border" gesture to aid their neighbors in Tecate, Mexico, at Christmastime.

Convair Management Club is spearheading collection of articles to be distributed to children and grown-ups alike in the border town in appreciation for the hospitality shown the club during its Nov. 25 visit there.

James McSparron, who heads the committee in charge, says that usable kitchen utensils are desperately needed. Canned foods, clothing and toys in good repair are on the priority list.

Collection boxes will be placed, probably by the first of next week, at strategic points around the plant. Donors should look for them at Gate 5, Gate 2, Overpass 1 near Bldg. 5, and Gate 10.

Everyone who would like to share a little this Christmas is urged to bring what they can into the plant during the next couple of weeks. McSparron and his assistants, Miles Stepich and Hank Zych, will make the delivery to Tecate during Christmas week.

Mgt. Club Yule Dance Tickets on Sale

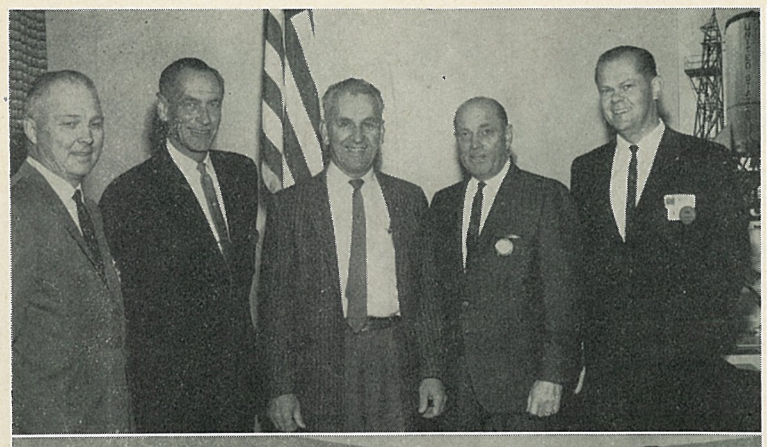
Convair Management Club members and their guests will observe the Yuletide season with their annual Christmas dance Friday (Dec. 11) in the Pavilion Room of the U. S. Grant Hotel.

Dancing will be from 9 p.m. to 1 a.m. to the music of Earl Fisher's orchestra.

Usual raffle and special entertainment will be held during the evening.

Tickets, at $2.50 per couple, now are on sale at regular outlets within the plant.

The traditional social affair is promoted by officers and members of the Management Club with Ralph Montgomery, past president, acting as chairman.

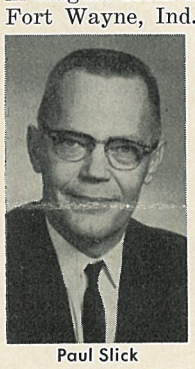


VETERANS—E. L. Raymond, GD/Convair Dept. 400-1, received 35-year service emblem from President J. H. Famme. With him (upper photo) are, from left, O. L. Hunley, Dept. 400; W. D. Reed, manager, manufacturing; Raymond; Famme; A. M. Van Horne, Dept. 400. In lower photo, D. C. Newlon, right, GD/Electronics manager of operations pins 25-year emblem on R. J. Hogue, Dept. 4075. J. P. Morris, in charge of production engineering, is at left.

Paul Slick Now Chief Engineer For GD/E's San Diego Operations

E. Paul Slick has been named chief engineer for research and advanced techniques for GD/Electronics at San Diego, D. C. Prim, SD manager, announced.

Slick came to GD/Electronics in August from Magnavox Co. of Fort Wayne, Ind., where he held the post of manager of weapons systems development.



Paul Slick

He will report directly to Prim, as does B. G. Anderson, recently-appointed chief engineer-design engineering.

Slick's department will be concerned with increasing GD/E's depth and scope in advanced electronic systems and with the research and development of "state of the art" technology in support of systems programs.

His past experience includes nearly 10 years with Magnavox and five years with ITT-Farnsworth Division, also at Fort Wayne, where he was chief project engineer. From 1942 to 1945 he was with General Electric Co., Syracuse, N. Y.

A native of Walkerton, Ind., Slick received his bachelor's degree in electrical engineering and master's in physics from Notre Dame University. He served as a radio operator with the Army during World War II.

Gift Exchange Slated By GD/E, S-C Wives

Monthly luncheon of GD/E and Stromberg-Carlson wives will be held Dec. 17 this month, a change of meeting date from the second to the third Thursday.

The University Club, 1333-7th St., has been reserved for the holiday affair which will feature a gift exchange. All attending are to bring a present, not to exceed $2 in value.

Social hour is at noon; luncheon at 1 p.m.

All GD/E and S-C wives in the San Diego area are welcome to attend, and bring guests, without special invitation. Reservations must be made by Dec. 15 with either of the co-hostesses: Mrs. Richard Barnett, phone 453-0607, or Mrs. George Oatman, 277-6474.

Log Book Entries

Awards

Employee Suggestion Awards approved for periods ending Nov. 13 and Nov. 20.

Dept. 101, C. F. Dupree, $10; J. H. Hammer (two awards), $10 each.

Dept. 115, R. Danner Jr., $10; L. W. Kirkendall, $10; A. A. Lockwood, $10; N. L. Valentino and C. J. Popp (joint award), $93.06 each (partial payment).

Dept. 119, B. F. Armas, $10; G. E. Armstrong, $53.15; V. Breit, $24.16; R. T. Lanzo, $16.10; R. J. Wilsterman, $33.05.

Dept. 401, A. L. Simpson, $10.

Cost Improvement Proposals approved for the same periods.

Dept. 115, S. T. Krebs (two proposals).

Dept. 119, L. W. Stamper.

Invention Disclosures

OVERSMITH — R. H., Dept. 65-3. Encapsulated Engine for Underwater Propulsion.

Rider-Driver

RIDE WANTED — 8 a.m. to 5 p.m. from Balboa and Genesee, North Clairemont to Plant 1. Stan Kuegeman, ext. 1977, or home phone, 278-9734.

CAR POOL—7:30 to 4:30, Clairemont to Plant 1. Robert McNamara, ext. 528, or home phone 277-6237.

Retirements

ANDERSON — Carl E., Dept. 171. Seniority date March 19, 1952, retired Aug. 19.

MORGAN — Stanley, Dept. 140. Seniority date Sept. 8, 1949, retired Sept. 20.

REYNOLDS — Lloyd E., Dept. 48-01. Seniority date June 13, 1952, retired Nov. 17.

General Dynamics NEWS

Published by General Dynamics Corporation, One Rockefeller Plaza, New York, N. Y. 10020; with editorial headquarters at 3302 Pacific Highway, San Diego, Calif. 92112, P.O. Box 1950, telephone 296-6611, ext. 1071. Logan Jenkins, editor-in-chief.

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Stromberg-Carlson (San Diego) news contact: Helen Wood, 298-4641, ext. 1377, Plant 1, Bldg. 51.

Fort Worth Editorial Offices, between Cols. 71-C and 71-D, Assbly. Bldg., GD/Fort Worth, Mail Zone T-63, P.O. Box 748, Fort Worth, Texas 76101. Telephone PErshing 2-4811, ext. 2961. Staff: Dave Lewis, editor; Mary Beck.

Pomona Editorial Offices, Room 119, Bldg. 1, GD/Pomona, Mail Zone 3-13, P.O. Box 2507, Pomona, Calif. Telephone, NAtional 9-5111, ext. 6226-5279. Staff: Glenn Kehr, editor; Carol Colbert. Daingerfield news office, P.O. Box 947, Daingerfield, Texas. Telephone Lone Star, Texas, 2211, ext. 424.

* * *

Affiliated editions of General Dynamics NEWS are published in Rochester, N. Y., covering GD/Electronics and Stromberg-Carlson, editorial offices, 100 Carlson Road, HUbbard 2-2200, ext. 2555. Fred E. Voss, editor; and at Groton, Conn., covering GD/Electric Boat, editorial offices at Groton, 446-3129. Ed Caffrey, editor.

S-C and GD/E Xmas Dance To Be Dec. 19

Dec. 19 is the date to circle on GD/Electronics and Stromberg-Carlson calendars!

That is the day set for the annual Christmas dinner-dance for all San Diego employees of the two divisions, and their guests.

The third holiday affair will be held in Hotel del Coronado. Dinner will be served at 8 p.m. Bart Hazlett's Orchestra will play for dancing throughout the evening, said George Oatman of S-C industrial relations who heads the arrangements committee.

Tickets will be on sale throughout both facilities by the first of next week.

Technical Pubs Relocated in Bldg. 51 Area

Technical publications at GD/Convair has been relocated into Bldg. 51 at Plant 1 from the Bldg. 4 mezzanine.

All of the 55 people reporting to H. R. Kennedy, manager of publications, now are in new quarters on Bldg. 51's third floor, Area I, near the new location of Convair's office services.

The enclosed area in the extreme northwest corner of the building contains 15,606 sq. ft. It was last occupied by a group from Astronautics service publications who moved earlier this year to Plant 19.

The Convair publications department had been on Bldg. 4 mezzanine since it was "temporarily" located there in early 1958 during remodeling of Bldg. 5.

Extensions and zone numbers remain the same. Kennedy's office is located on the south side of the new area. His extensions remain 1180/436.

Christmas Baskets Donation Approved

A donation for Christmas baskets which the Salvation Army distributes to needy families in the San Diego area was approved by the Convair Employees' Con-Trib-Club Committee last week.

As in past years, Con-Trib will direct $500 to the Salvation Army specifically for purchase of turkeys and food going into the holiday baskets.

Other action at the Nov. 24 meeting saw approval of $1,000 for Sunnyside Guild and a redirection of $500, already approved for the Senior Citizens Lounge through the Council of Churches, to the Salvation Army for the new lounge location. The Senior Citizens Lounge is now a part of the Salvation Army organization.

Muscular Dystrophy Association of San Diego County received $500 at the October meeting.

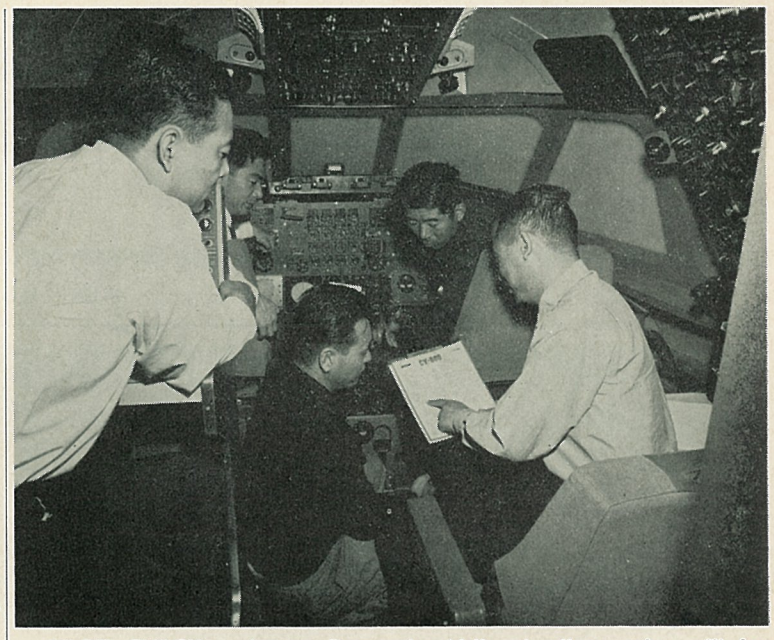
Family Protection For Blood Offered

GD/Convair, GD/E, and Stromberg-Carlson employees in San Diego are reminded that they and their families can be fully protected for blood needs by joining the Blood Service Plan of the San Diego Blood Bank.

Under the program, employees may take out a family membership by donating one pint of blood, or paying $4, for complete protection for a full year. This guarantees all the blood the family (dependents under 19 years of age) may require during the period.

Individual memberships are $2 a year, or donation of one pint of blood for a two-year single membership.

Application cards are available at all employee services outlets. They must be filled out and mailed with fee to San Diego Blood Bank, 3405 Fourth Ave., SD.



PILOT CHECK — Japan Domestic Airlines' pilots, who will be flying Convair 880-M jetliner now being readied for delivery, just completed intensive checkout in cockpit procedures trainer at Convair. They are, from left, Hiyoshi Kodera, JDA flight engineer-instructor; Tadao Endo, Ryozo Ogo (kneeling), Isao Terasaka, Hachiro Nakano.

Captains Spend Week Training For Transition to Jet 880-M

Four captains of Japan Domestic Airlines, who will be assigned to the Convair 880-M jetliner when it joins the JDA fleet after the first of the year, spent a week of intensive training at Convair's San Diego plant last month.

Ryozo Ogo, Isao Terasaka, Tadao Endo, and Hachiro Nakano are in the United States for transition to jet aircraft. All have been flying Convair-Liners with JDA.

They had 40 hours of familiarization in Convair's 880-M cockpit procedures trainer the week of Nov. 16-20 and are now in Los Angeles for actual flight training on a JAL 880-M, brought from Japan for the purpose.

C. L. Falkenthal, Convair flight engineer-instructor, was assisted during cockpit procedures training by Hiyoshi Kodera, JDA flight engineer-instructor, who took his own ground school training at Convair three years ago before Japan Air Lines received its first 880-M. Kodera is on loan to JDA at present.

JDA's 880-M will go into service over internal routes extending from Tokyo, home base, to Chitose on Hokkaido in the north and to Fukuoka, seaport on the southern island of Kyushu.

Convair Charger's First Flight OK; Knebel Calls it 'Nimble Airplane'

(Continued from Page 1)

These capabilities make the Charger ideal for military service in places like Viet Nam or Malaysia, for example, or for special-mission use during peacetime, such as delivery of medical personnel and supplies to remote areas or other small transport and logistic roles.

General Dynamics is offering the Charger as an "off-the-shelf" airplane. One hundred production aircraft can be delivered 18 months after an order is placed or 500 airplanes three years after such a go-ahead. The average unit price would be $250,000 in the latter case.

Production versions of the Charger will be built to perform a wide variety of missions, including armed reconnaissance, surveillance and observation, transport and other close-support roles.

The airplane will be able to operate from an aircraft carrier, unaided by catapults or arresting gear, and will accept floats for operation as an amphibian.

Logistic requirements for the airplane, as flown today, are reduced to basics because 48 per cent of its parts are interchangeable left or right. Major interchangeable parts include the landing gear, vertical tail and wing flaps. Conventional aircraft rarely exceed 12 per cent in interchangeability of parts.

To further make the airplane self-sufficient, the Charger can carry a spare engine and propeller assembly in its fuselage bay for field replacement. Two men can remove an engine and replace it within 15 minutes, using ropes around the engine mounts if mechanical hoists are not available.

The aircraft's two Pratt and Whitney turboprop engines can burn truck fuels as well as aviation fuels. Military versions of the Charger would be equipped with weapons that fire the same ammunition used by infantry units.

Equipped with external fuel tanks as well as its internal tanks, the military version will have a ferry range of 2,600 nautical miles, far enough to deploy it anywhere in the world. Such a range would easily enable it to fly from California to Hawaii, for example, the longest overwater leg it would have to make for overseas deployment.

In addition to a 6,000-pound payload capability—1½ times its own weight empty, the Charger also has the alternate capability of carrying six fully-armed and equipped paratroopers in its fuselage bay.

'Christmas in Mexico' Tour List to Close

Final call is out for GD travelers who want to observe Christmas in another country.

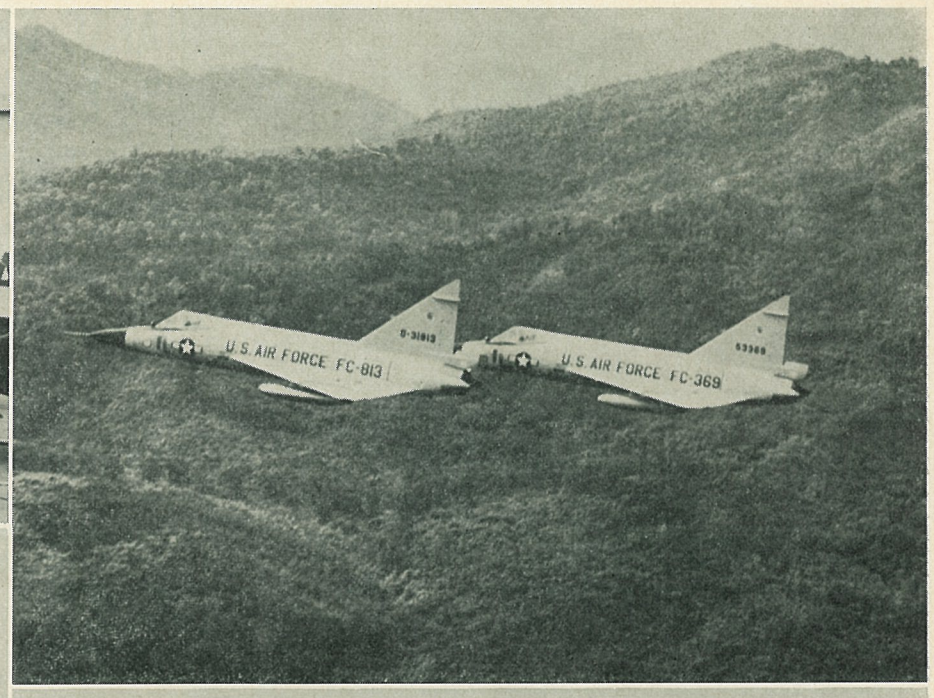
There are still a few openings on the "Christmas in Mexico" tour sponsored by Astro Management Club for all General Dynamics people and their friends. Tour leaves San Diego Dec. 19 and returns Jan. 3. Entire cost is $365 per person.

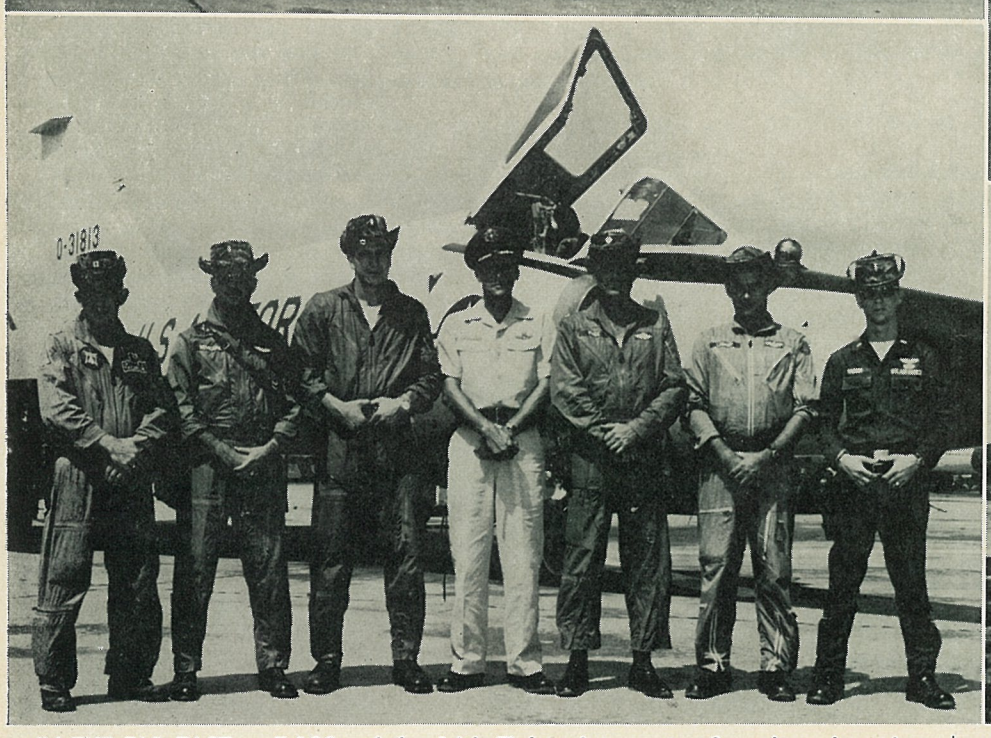
Last-minute reservations will be taken this week by James Hardison of Convair, tour conductor.

New Dept. Created, Dale Marks to Head

(Continued from Page 1)

forecasts; evaluating capacity and availability of existing facilities; assisting departments in interpretation of ground rules for facilities requirements forecasts; coordinating and preparing integrated facilities acquisition plans; coordinating preliminary design and estimates for equipment, buildings, and leasehold improvements; preparing and maintaining master plant layout drawings and developing master space control plans; maintaining status of facilities projects and schedules; processing facilities acquisition requests; maintaining property controls and accountability records; determining surplus equipment and arranging for its disposition.





IN THE FAR EAST — F-102s of the 16th Fighter-Interceptor Squadron, based at Okinawa, are pictured during sorties over Viet Nam. At top left pilots practice a "scramble" and at top right Convair-built planes soar over rugged terrain. At lower right, landing at Saigon, planes "come in high and land long." "You would, too, with Viet Cong so near," reports H. R. Smith, Convair's field service rep, based with 16th FIS at Naha Air Base, Okinawa, for well over two years. Squadron is attached to 51st Fighter Wing in Pacific area. At lower left are Lts. Taylor, Newcomb, Currier, Col. Taylor, Lt. Col. Page (16th CO), Capt. Legako, Lt. Tatum.

REALLY BIG SHOW—W. D. Halsey, left, and N. B. Robbins, inspect giant camera once used in RB-36. Camera, with artist's drawing showing its placement in forward fuselage, is headed for Air Force Museum.

6,000 Pounder

Giant Camera Carried in RB-36 Will End Career in Museum

A giant Air Force camera, which once "photographed a golf ball" from an RB-36 45,000 feet in the sky, is going into retirement.

The huge camera, weighing approximately 6,000 lbs., was shipped from GD/Fort Worth to the Air Force Museum at Wright-Patterson AFB, Dayton. It will be placed on permanent display.

Built for the Air Force in 1951 by Boston University—and often called the "Boston University Camera"—the mechanism was fitted into the forward fuselage section of an RB-36.

"This was the first job handled by GD/Fort Worth's development department," recalled W. D. Halsey. "We had to cut a large hole in the top of the plane, lower the camera, then patch the skin."

The irregular-shaped camera is about 12 feet tall, five feet across and perhaps 12 feet deep at one point. It uses 18-inch wide film.

"Advantage of the long focal length was to get clearer large-scale pictures," reflected N. B. Robbins.

The "golf ball" incident was highlighted when former Undersecretary of Air Force John McCone showed a picture taken of a golf course from nine miles high to a Senate Appropriations Subcommittee. He was attempting to dramatize the country's reconnaissance capability.

Golfers showed up clearly in the picture, and using a magnifying glass, the golf ball was plainly discernible.

This picture, along with an artist's drawing of the camera placed inside the RB-36, is being donated to the Air Museum by GD/Fort Worth.

Advancements in the state-of-the-art in both film and optics have now led to the development of smaller, higher resolution cameras, permitting the retirement of the Boston U. camera.

To do one's duty sounds a rather cold and cheerless business, but somehow, in the end, it does give one real satisfaction.

E-B to Overhaul Peruvian Subs

Electric Boat division will overhaul two attack submarines, the Dos de Mayo and the Abato, for the Republic of Peru.

Both diesel-electric submarines were built at the Groton shipyard and delivered to the Peruvian Navy in 1954.

The Dos de Mayo was scheduled to arrive at Groton last month. It will be hauled on the shipyard's marine railway, where work on both vessels will be performed.

Tentative plans are for the Dos de Mayo to depart for Peru about March 1, with the Abato scheduled to arrive at about that time for a three-month overhaul period.

Similar in appearance to post-war U. S. Navy Guppy-type submarines, the Dos de Mayo and the Abato are 243 feet long and displace about 1,400 tons.

Two sister ships, the Angamos and Iqueque, were built by E-B.

People Mobility

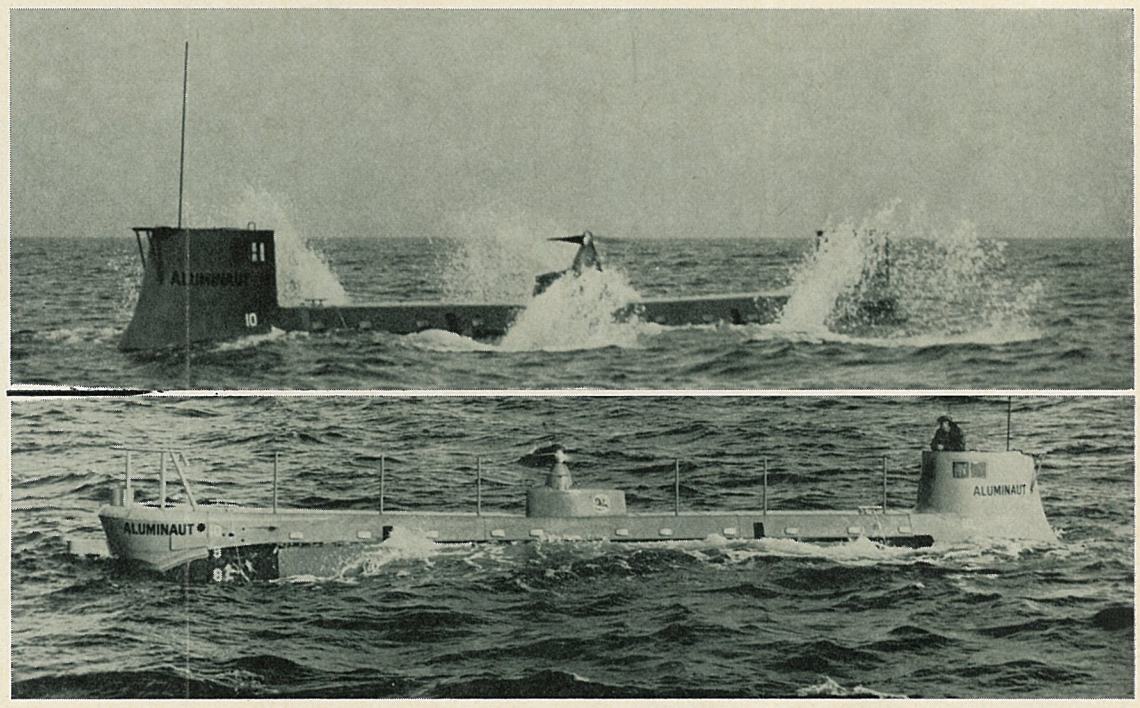
Interdivisional Transfers

(Following are recent personnel transfers among General Dynamics divisions. In parentheses are dates when individuals joined the company.)

ERWIN J. BOSCH (1952), **FRANK A. HESS** (1957), **GERALD W. ROBERTSON** (1964) from Astro to Convair engineering; **ERNEST J. ESTLICK** (1963) from Astro to Fort Worth chemical; **ARCHIBALD N. BOWDEN** (1955) from Astro to Electronics-San Diego estimating; **RAYMOND D. CHESLER** (1941) from Astro to Convair engineering.

DONN H. DE MARCE (1950), **CHRISTOPHER C. L. SPIKINS** (1956) from Astro to Convair engineering; **JAMES A. CHERRY** (1960) from Electronics-SD to Centaur estimating, Astro; **CLARENCE S. BARSUK** (1956), **ROBERT B. GOODRICH** (1953), **HOWARD PETERSON** (1963) from Astro to Convair engineering; **O. L. HARRIS** (1956) from Convair to EDP programmer, Stromberg-Carlson, San Diego; **GEORGE A. DETHIER** (1956) from Astro to Convair engineering.

JOHN C. McCAFFERTY (1955), **RUSSELL J. BJORSTROM** (1952) from Astro to Convair engineering; **ALAN E. GENSEMER** (1958) from Convair to Astro thermodynamics; **OSCAR B. QUINTANILLA** (1960) from Astro to Convair engineering; **GEORGE W. BARROW** (1954) from Astro to Electronics-SD purchasing; **GEORGE A. HAFFORD** (1954), **WALTER C. ROBINSON** (1947) from Astro to Convair engineering; **JOSEPH A. BAKER** (1957) from Astro to Electronics-SD quality control.



TEST DIVING—The Aluminaut, built by Electric Boat division for Reynolds International, Inc. for research and commercial projects, is continuing series of tests and dives after successfully completing builder's trials in Long Island Sound. Craft carries crew of three, is 54 feet long. In top picture she surfaces after dive. Recent rough weather has hampered test operations.

UP FOR GRABS—Lucky winners in CRA-ARA Gun Clubs' big game drawing won't get the girl or the gun, but they will have a chance at some of other hunting equipment ARA Commissioner Ezra Johnson is showing Donna Griffith of ARA staff. Top prize at Dec. 8 drawing will be 35mm camera.

35mm Camera To Be First Prize In Gun Club's Annual Drawing

A high-quality 35mm camera will go to some lucky big game hunter as first prize in CRA-ARA Gun Clubs' annual drawing.

This year's top prize is an Aires Penta 35 Reflex with a split-image range finder, fully automatic diaphragm, flash synchronized to all speeds, and 11 shutter speeds to 1/500—to mention a few of its features.

Eligibility for the camera, and many other valuable awards to be handed out at the Dec. 8 drawing, is simple for General Dynamics hunters who have bagged game during the season. All they have to do is fill out forms now at all GD employee services outlets, testifying to the type of game they shot.

Entries may be made right up to the time of drawing next Tuesday night, 7:30 p.m., in Gillespie Field Clubhouse.

Second prize will be a pair of 7x35 binoculars and third, a .22-cal. pistol. Other items include an Instamatic 100 Kodak, transistor radio, hunting gloves, stainless steel hunting hatchet, hunting knives, socks and other equipment. Number of prizes will depend entirely upon the number of entries.

Special feature on the evening's program will be a film showing of movies shot by Stromberg-Carlson's Ed Carey during hunting and fishing trips to Alaska. Carey, now S-C manager of international requirements, served as a pilot with the Air Force for many years and hunted and fished extensively in the north land.

Officials from the State Fish and Game Department have been invited to the Dec. 8 meeting, said CRA Commissioner Jack Swank and ARA Commissioner Ezra Johnson, who are making arrangements for the annual drawing.

GD MAN WRITING SPANISH COLUMN

"Hardison's Spanish," compiled by Convair's James Hardison, is a new weekly feature in the Sentinel, suburban newspaper serving Pacific Beach, Ocean Beach, La Jolla and Clairemont areas. The column is intended as a capsule course in Spanish, emphasizing the most commonly-used phrases. Readers are invited to dial a number to hear correct pronunciation on recordings.

XMAS TRAPSHOOT SET FOR DEC. 20

CRA Gun Club has set Dec. 20 as the date for its annual Christmas trapshoot at Gillespie Field Range. The shoot is open to all General Dynamics people. Hams and turkeys will be awarded to winners.

Safety Men Elect Rowland and Cooper

Three General Dynamics men are involved in recent elections of the San Diego Chapter, American Society of Safety Engineers.

Guain Bonner of General Atomic, retiring president, becomes the chapter's national representative. Sam Rowland of General Atomic is the new vice president, and James Cooper of Astronautics was elected treasurer.

Programs Combined In GD/Astro Move

Combination of the Space Launch Vehicle (SLV) and Atlas Weapon System (AWS) programs at GD/Astronautics was announced last month by President J. R. Dempsey.

The move, effective Nov. 16, consolidates both projects under C. S. Ames, vice president and program director-SLV, with C. J. Dunn as assistant program director-AWS reporting to Ames.

Income Tax Course Has First Session

Income tax course, sponsored by Convair educational services, is still open to all GD people, although first session was held last evening.

The six-session course in preparation of income tax returns in compliance with current regulations is held at Convair Plant 1, Bldg. 14, Room 8.

Remaining sessions will be Dec. 8 and 15, Jan. 5, 12, and 19. Hours are from 4:30 to 7 p.m. each night.

Registration will be accepted at next Tuesday night's class upon payment of the $2 enrollment fee.

Instructing is Gerald V. Baughman, tax expert formerly with Convair accounting department.

The course is given as a part of the Hoover High School Adult Education program.

AFSC Colonel To Be Speaker

Col. William F. Stevens of Air Force Systems Command Headquarters, Andrews AFB, Md., will be main speaker at the Dec. 14 meeting of San Diego Section, American Society for Quality Control.

Dinner meeting will be in the Bronze Room and Restaurant, La Mesa. Social hour will be at 6 p.m., dinner at 6:30, and meeting at 8.

Col. Stevens serves as Chief of the Systems Effectiveness Division Directorate of Systems Policy, DCS/Systems. He previously was director of armament training at Lowry AFB, Col., and was division observer during transition from B-50s to B-47s at MacDill AFB, Fla.

In addition to his primary military duties, he has been active in promoting a close military-industry relationship for improving the techniques and methods for overall weapons systems effectiveness.

P. I. Harr, GD/Astronautics director of reliability control, will moderate at the meeting.

Tickets, at $2.50, are available from: Convair—L. Stuckey, ext. 646, Plant 1; Astro Plant 71—Paul Gelles, ext. 4504; Astro Plant 19—R. F. Frederick, ext. 509; GD/E—J. A. Lederer, ext. 1476; S-C—Ivan Kemper, ext. 36, Plant 2.

ASTRO PILOTS LOG SAFE FLYING HOURS

Two General Dynamics pilots now with Astronautics, have received certificates attesting to well over the minimum 500,000 miles of safe flying required for National Business Aircraft Association's safety awards.

Glen M. Barker, now captain in charge of Astro's flight department, and Vince Gann Jr., have both piloted aircraft for business operations for nearly 800,000 miles "without accidents involving damage to property or injury to personnel."

Barker has 798,660 miles to his credit; Gann, 789,495.

Both were former Convair pilots, transferring to Astro flight department last year. They pilot Astro's Aerocommanders connecting San Diego with offsite bases.

Garden Club to Hold Christmas Party

Santa Claus will make a preview appearance tonight (Dec. 2) at the annual Garden Club Christmas party to hand out gifts to the youngsters and grown-ups attending.

Convair and Astro families will gather at 7 p.m. in the Floral Association Bldg., Balboa Park, for their usual holiday celebration. Time has been set up half an hour to get the children home for regular bedtimes.

Besides the gift exchange there will be refreshments and door prize drawing for valuable items and turkeys.

GD/Astro Design Specialist's Invention Now in Production

A simple solution to a problem which plagues military and commercially-oriented industries alike has been found by a GD/Astronautics employee.

Charles M. Richards, design specialist, Dept. 528-3, has been issued U.S. Patent No. 3,139,294 for a "Flared Tube Fitting and Seal"—specifically an improved sealing technique for the AN-type tube fitting used widely in missile and aircraft industries.

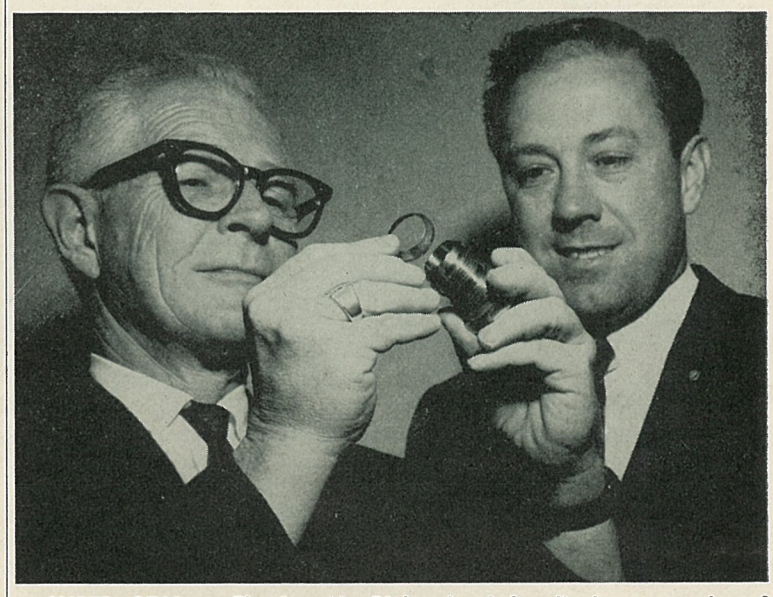
Although AN fittings find their best application in joining lines carrying low viscous fluids, they have been the subject of considerable research directed at correcting leakage around the fittings.

Imperfections of fitting or tube, variations in concentricity, less than completely smooth and polished mating surfaces—all contributed to the leakage problem, and it had been economically impossible to mate the conical surfaces of fitting and tube with total effectiveness.

In 1958 Richards came up with an answer to the problem by inventing a soft, crush washer for use with the standard AN fitting. His initial seal was of copper, although Richards recognized that any malleable, soft metal (tin-plated copper, aluminum, nickel, etc.), could be used. To speed assembly, he added flat surfaces on the skirt of his seal to grip the fitting while the tube was being connected.

"Invention in hand," Richards contacted GD/Astro's patent department (Dept. 103-1) and filed patent application covering the seal and the flared tube fitting. The device was subsequently licensed to Voi-Shan Manufacturing Co., of Culver City, Calif., which has successfully produced and marketed the seal.

Royalties to General Dynamics on Richards' invention this year will run to at least $25,000, of which he will receive an appropriate share under provisions of the General Dynamics Patent Plan.



SUPER SEAL — Charles M. Richards, left, displays sample of "Flared Tube Fitting and Seal" to Carl R. Brown, GD/Astro patent counsel. Richards holds patent. Seal, now produced and marketed under license to General Dynamics, improves effectiveness of AN-type fittings.

Soldering Holders at GD/Astro Raise Work Station Efficiency

Soldering operations in GD/Astronautics electronic manufacturing (Dept. 780) have been made easier and more efficient through recent installation of compact soldering equipment holders at work stations.

A look at previous work station layouts had disclosed a number of flaws in the soldering arrangement. Each employee used a soldering iron, cleaning sponge, iron holder, flux bottle and can of chlorothene cleaner — usually spread out randomly across the work area.

Studies indicated that employees had to "search and reach" for various of these items on an average of 110 times an hour. Minor burns resulted from reaching across the unprotected iron tips, or from knocking irons off their stands. Flux bottles were often upset, and time was lost while cleaning up the spillage.

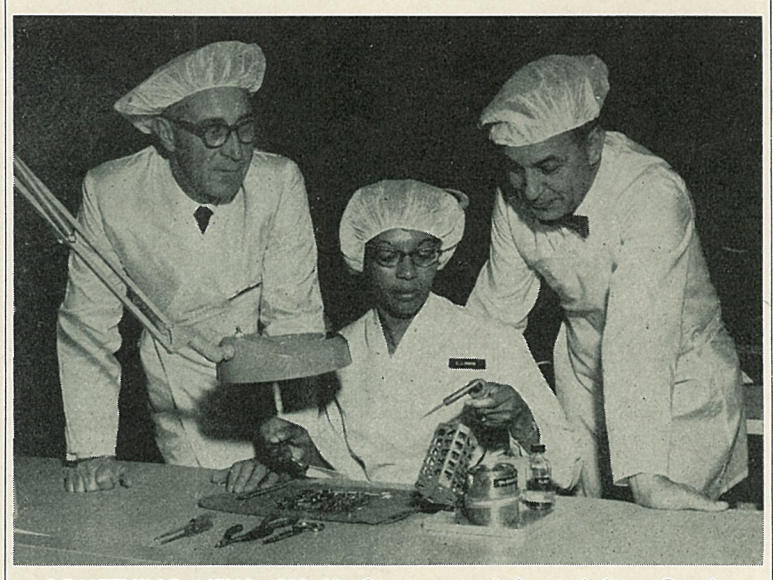
Seeking a solution to these problems, W. U. Gatterman, electronic manufacturing general foreman (Dept. 780-2), and Sam Catalano of operations planning and methods (Dept. 405-2) surveyed other electronics firms, then worked out a new unit adapted to GD/Astro requirements.

Fabricated in-plant, new holders consist of a solid aluminum base, 6½ by 7-inches, to which is bolted or clamped a cage-type iron holder, tip cleaner, a flux bottle and half-pint can of cleaning fluid.

The setup places all items together within easy reach, while the cage-type holder completely covers the soldering iron when it is not in use, and supports it so it cannot fail.

By reducing the "search and reach" phase, soldering efficiency is improved and iron burns are eliminated, as is spillage since flux and cleaning solution containers are clamped to the stand.

Sixty of the new stands were in use by early November, and expansion to all soldering areas at GD/Astro is planned.

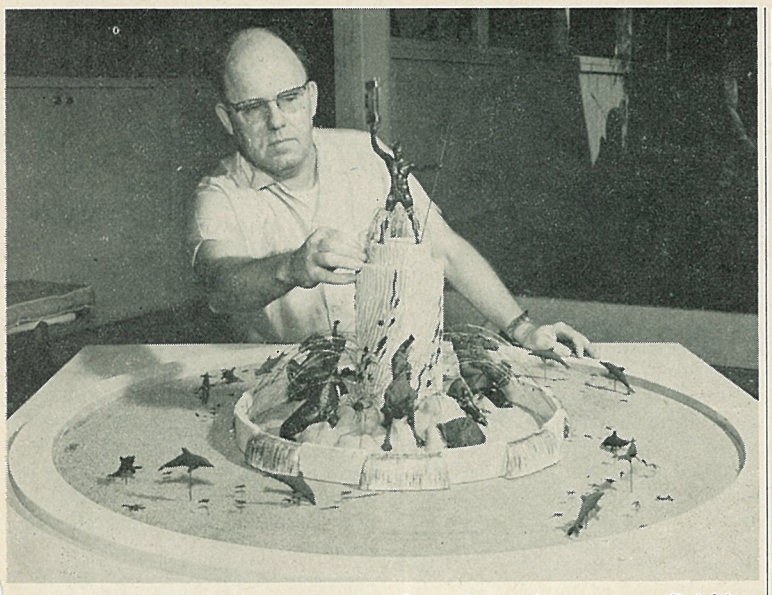


SOMETHING NEW—W. U. Gatterman, left, and Sam Catalano, right, watch with interest as Ethel Owens demonstrates use of new soldering equipment holder in GD/Astro electronic manufacturing. Holders, designed and built in-plant, are now in use at 60 Dept. 780 work stations.

December Salvage Schedule Released

Salvage yards at Convair and Astronautics will be closed over the holiday weekends at Christmas and New Year's.

December schedule is:
Convair—Dec. 5, 19.
Astro—Dec. 12.



SEA COURT — Frank Morgan, Convair engineer, puts finishing touch on model for fountain depicting King Neptune and his sea creature subjects. Design is entered in nation-wide contest for plaza in Philadelphia, Pa.

Convair Engineer and Sculptor Competes in Fountain Design

An artistic fountain design created by Convair engineer Frank Morgan is under consideration with other entries throughout the country for beautifying the Benjamin Franklin Parkway plaza in Philadelphia, Pa.

Morgan, a professional sculptor, submitted the only entry from San Diego area in the contest. A panel of five leading architects and sculptors are evaluating the over 400 designs entered. First-place prize money is $12,500. The next nine top contestants will divide $17,500.

The "Court of Neptune," as Morgan designated his imaginative work of art, is centered around an imposing figure of King Neptune, twice life size, standing in a flow of water atop a cement column sheathed in sculptured granite. Entire height from ground level is 41½ feet.

Demanding specifications called for designs which will not only be beautiful in themselves, but also merge harmoniously with surrounding landscaping and construction. All materials must withstand the rigors of extreme hot and cold weather.

Morgan spent a strenuous two months firming his design and building his true-scale model. Detailed architect drawings were required with close-up photographs of the model, explicit details of water action and elimination, lighting, list of all materials, and breakdown of costs.

Morgan's design and modeling experience includes 20 years in the Navy as a patternmaker, and before that, pottery modeling and work in an ornamental pattern shop in Illinois. He has been a mechanical design engineer at Convair the last 10 years.

Now, in addition to his engineering duties, he designs and sculpts decorative garden structures—fountains and statues, besides a wide range of other unusual art objects. He served as consulting sculptor on the international border Lincoln-Juarez Memorial project which is still pending.

Parents Team With Juniors In Thanksgiving Gun Event

Fathers and mothers teamed as silent partners with young Astro Junior Rifleers in a luck event Nov. 21 at CRA Gun Range to help bring down the main entrees for Thanksgiving dinners.

Winners of the four turkeys supplied by CRA and ARA were: Steve Greer, first, 132; John Tramposh, second, 111; Steve Callow, third, 97; and Garrett Miller, fourth, 90.

Scores were the aggregate of five rounds shot by each Junior and five by his adult partner at the same target.

In an adult staff shoot following the Juniors' competition, Rocky Eaton, Bill Polakowski, and Martin Miller were one-two-three out of the 16 competing.

Fun trophies went to all winners.

Two more big events are on the Junior schedule during the next couple of weeks. Five two-man teams of Junior boys and girls will travel to Camp Pendleton Saturday to participate in the Southern California Junior Invitational Tournament.

(An Astro Junior Rifleer, Richard Ellis, placed third in a field of 48 in individual standings in the master class at a similar Southern California Junior Invitational event sponsored by Pasadena Rotary Club Oct. 25. He scored 384 out of a possible 400.)

The rest of the young Convair and Astro gunsmen making up the rifle group will gather at the CRA Range on the same day (Dec. 5) at 8 a.m. for their regular club shoot.

Another turkey shoot will precede the Dec. 19 Christmas party and gift exchange at Gillespie Field Clubhouse.

"THIS OLD DESK" — Barbara Barbat of Convair technical publications packs up for move to Bldg. 51 on top of 1925 office desk, unearthed during checkout of equipment prior to relocation. Desk, purchased originally for $33, had come with Consolidated from Buffalo and been used ever since.

CRA Calendar

(Convair Recreation Association has some 30 activities in operation for Convair, GD/E, Stromberg-Carlson people. For information call CRA Headquarters, ext. 1245.)

★ ★ ★

AEROMODELERS — Flying sessions Saturday and Sunday mornings, 8 a.m. to 1 p.m., Clairemont Mesa flying site.

BASKETBALL — City League pre-season tourney starts this week.

CAMERA CLUB — Meeting Dec. 6, 7:30 p.m., Photo Arts Bldg., Balboa Park.

COIN CLUB — Meeting Dec. 17, 7:30 p.m., Convair cafeteria, Pacific Hwy.

FENCING — Workouts and instruction Fridays, 7-10 p.m., YWCA, 10th & C Sts.

FISHING CLUB — Meeting Dec. 15 at Gillespie Field Clubhouse.

GARDEN CLUB — CRA-ARA family Christmas party tonight (Dec. 2), 7 p.m., Floral Association Bldg., Balboa Park.

GOLF — Entries open today (Dec. 2) through Dec. 4 for CRA tourney Dec. 12 at Bonita Valley Country Club. Call ext. 1705, Plant 1.

GUN CLUB — Annual big game contest drawing Dec. 8, Gillespie Field Clubhouse. Entry forms still available at all GD employee services outlets. CRA club shoot Dec. 6; annual open Christmas shoot Dec. 20, both at Gillespie Field Range.

ICE SKATING — Thursday ice skating sessions for GD people, Mission Valley Ice Plaza, 6:30-8 p.m.

JUNIOR RIFLEERS — Club shoot Dec. 5, 8 a.m., CRA Gun Range. Club meeting Dec. 16, 7 p.m., ARA Clubhouse. Christmas shoot and party Dec. 19.

MODEL RAILROAD — Work nights, Fridays, 7:30 p.m.; open sessions, Sundays, 1-4:30 p.m., House of Charm, Balboa Park.

MOVIES — Reduced prices for GD people at State Theater, Euclid and El Cajon Blvd. General admission: adults, $1; children, 35¢.

PISTOL CLUB — Club shoot 9:15 a.m., Dec. 13, San Diego Police Pistol Range, Federal Blvd. and Home Ave.

RADIO CLUB — Meeting Dec. 10, 8 p.m., club headquarters on Harbor Drive.

RIDING CLUB — Annual family Christmas party Dec. 5, Gillespie Field Clubhouse.

ROAD RUNNERS — Meeting Dec. 17, 7:30 p.m., Gillespie Field Clubhouse.

ROCKHOUNDS — Meeting Dec. 10, 7:30 p.m., Gillespie Field Clubhouse. Lapidary workshop open Wednesday nights, 7-9 p.m.

SNOW SKI CLUB — Weekend trip to Mammoth Mt., Dec. 5-6. Dry land ski instruction Dec. 6, 1-3 p.m., Conference Bldg., Balboa Park.

SPORTS CAR CLUB — Meeting and rally tonight (Dec. 2), 7:30 p.m., Convair cafeteria.

STAMP CLUB — Meeting tomorrow (Dec. 3), 7:30 p.m., Convair executive dining room.

Golfers Win Turkeys In Coronado Tourney

Six golfers "shot" their Thanksgiving turkeys at CRA's November links tourney over the Coronado course.

Winners of birds at the Nov. 21 event in the 0-14 flight were Stan Gmyr of Dept. 6, low gross, 79, and Logan Jenkins of **GD/NEWS**, low net, 69.

Terry Kell (Dept. 423) held low gross in the 15-23 flight with an 84. Tobe Hunley (Dept. 400) was low net scorer, 67.

In the 24-and-over flight Paul Bieberdorf (Dept. 14) shot 96 for low gross and John Wood, also Dept. 14, 71 for low net.

LINKS TROPHY—Ilene Wilson, kneeling second from right in foreground, holds first CRA trophy given for low score in GD Women's Golf Club tourneys. Other members vying in November match were (standing) Nell Bartlett, Barbara Bugbee, Doris Parker, Betty Jackson, Helen Kielmeyer, Florence Kell; (center row) Jean Mishall, Maggie Clark, Jo Ann Kranz, Ora Carpenter, Jeanne Hawthorne; (front row) Mary Ransom, Dorothy McEwen, Joy Ward, Ilene Wilson, Ann Gagnon.—Photo by Forest Braddock.

Hams Will Be Prizes For Dec. 12 Tourney

Entries open today (Dec. 2) for the holiday CRA golf tournament set for Dec. 12 at Bonita Valley Country Club. Hams will go to winners in each flight, said Commissioner Ken Wulfemeyer.

Starting times will be given over ext. 1705, Plant 1, through this Friday, last day for entering.

$1 Saving Offered For Charger Game

Discount tickets to this Sunday's (Dec. 6) home game pitting Chargers against New York Jets are still on sale at Convair, S-C, and GD/E employee services outlets.

Regular reserved admission of $3.50 is reduced to $2.50 through CRA arrangements.

The same discount price will be offered football fans for the season's final home game Dec. 13 with the Kansas City Chiefs. Those tickets will go on sale next Monday (Dec. 7).

Ilene Wilson Wins Low Net

Ilene Wilson, formerly of Convair, won the first individual trophy awarded for low net score at regular monthly tournament of the General Dynamics Women's Golf Club.

CRA is furnishing the attractive trophies which will go to first place in the girls' links matches from now on. Gift certificates go to second through fifth places.

Twenty teed off in Nov. 14 competition over the River Valley course. Besides first-place Mrs. Wilson, other winners were: Mary Ransom, second; Jean Mishall of General Atomic, third; Ora Carpenter of Convair, fourth; and Barbara Bugbee, fifth.

Next tourney date is Dec. 12 at Cottonwood course.

All members of the GD golfing group, and girls interested in joining, are invited to a holiday cocktail party hosted by Jean Hawthorne and Nell Bartlett on Dec. 3 at 7:30 p.m. Address is 4266 Gila Ave. in Clairemont.

County's Highest Skiing Award Goes to Convair's Joe Harris

CRA Snow Skiing Commissioner Joe Harris received the highest skiing honor of the year as the individual who has done the most for skiers in San Diego County in an award presentation at the annual Sno-Ball Nov. 21.

Harris was chosen for the 1964 Viking Skier Award by the San Diego Ski Council.

The award was conceived by Scandinavian Airlines System and given to the San Diego area on behalf of the "Foreningen Til Ski-Idrettens Fremme," (Association for the Furtherance of Skiing) located in Oslo, Norway. The award was flown on SAS direct to San Diego from Oslo. In Norway this Viking Skier is well-known as "Birkebeiner."

Harris, instrumentation engineer at Convair's high speed wind tunnel, has been CRA commissioner of snow ski activities since 1955, and headed Convair Recreation Association Council as president in 1962.

He was instrumental in organizing ice skating, snow ski, and water ski activities for the division and headed all three as commissioner when they were formed in 1952.

He was actively involved in starting ski clubs at Pomona, Antelope Valley, Astronautics, and the Don Diego Club with which the Convair ski club now joins for all activities.

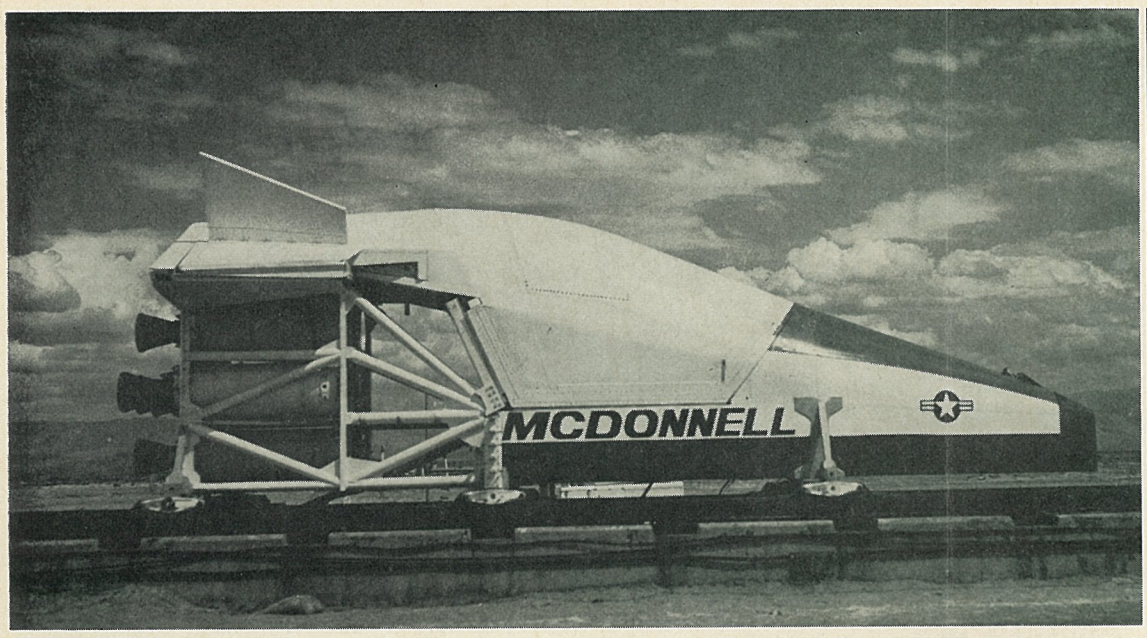
Harris also started the dry ski lessons for the Convair group which now are offered to the public, as well, under the City Park and Recreation Department. He is in the midst of instructing 200 beginners in the current course.

As board member of the Far West Ski Association and chairman of the San Diego Ski Council, he heads arrangements for the annual Sno-Ball.

GD/E, S-C GOLFERS WILL PLAY DEC. 13

Only links match this month for GD/E and Stromberg-Carlson men golfers will be Sunday (Dec. 13) at Coronado golf course. Tee-off time is 8 a.m.

"VIKING SKIER"—Joe Harris, CRA commissioner of Snow Ski Club, with "Viking Skier Award" from Norway, given him for efforts in promoting skiing in San Diego County.



FAST RIDE—Rocket-powered F-111 escape module, mounted on specially constructed test sled, approaches 1,000 mph as it speeds down track at Holloman AFB. Tests will determine in-flight stability under simulated ejection conditions.

F-111 Cockpit Simulated For High Speed Ejection

Simulated escape test flights of the F-111 crew module are being carried out at the Air Force Missile Development Center, Holloman Air Force Base, N. M.

The center is assigned to the Air Force Systems Command.

A specially designed test sled carrying a simulated F-111 cockpit provides the project's test environment. Attached to two track rails by steel slippers, the test vehicle is pushed to speeds of nearly 1,000 miles an hour by three stages of rocket-motor firings.

At these great speeds, the crew escape module ejects from the test vehicle by its own solid propellant rocket motor.

Major emphasis has been placed on the test performance of the system that separates module from aircraft.

To prevent accidental separation during flight, the system cannot be activated until the capsule's rocket motor fires. Firing activates an explosive charge installed between the capsule and aircraft that completes the separation. On-board cameras record the process in detail so that the critical moment of separation can be evaluated later.

In-flight capsule performance is also observed closely. With a portion of the aircraft's wings acting as stabilizers, the module must travel in a trajectory that offers the crew a satisfactory measure of safety. Pitch and roll of the vehicle must be kept to a minimum during the burning time of the booster.

Other test instruments record vibration levels, gravity forces, and actual sounds the crew will hear during capsule rocket firing and separation.

Five on-board cameras observe parachute deployment, test dummy motions, and sled and capsule separation. Numerous high-speed cameras sighted on the test area record the sled run and the entire ejection sequence.

The Holloman track program, which is scheduled to continue over a two-year period, will determine reliability of the ejection system and stability of the escape vehicle under simulated flight conditions. GD/Fort Worth has set test criteria to include eight consecutive successful track tests before the system is termed operable.

The module provides shirt-sleeve environment, safe escape and recovery through the operating envelope of the F-111—including zero speed and underwater escape.

The ejection vehicle, developed by McDonnell Aircraft Co. of St. Louis, includes the entire crew compartment and a portion of the fuselage and wings.

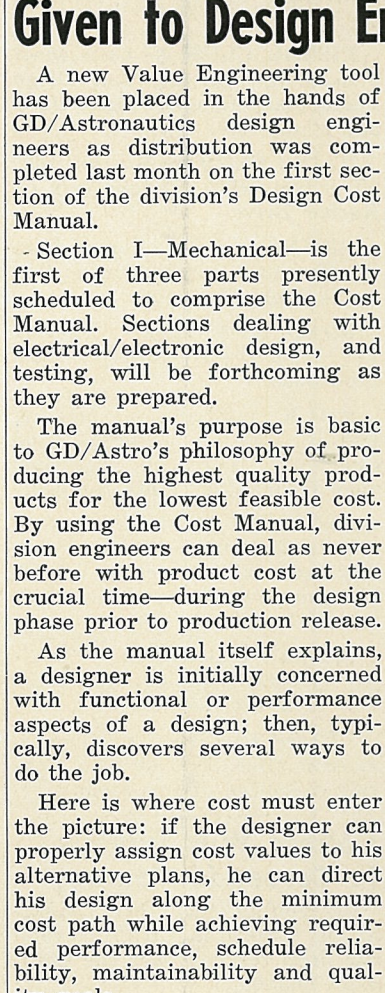
Air National Guard Honors F-102 Group

Top award for most operationally-ready ADC unit in the Air National Guard went to the F-102A-equipped 149th Fighter Group, Kelly AFB, Texas.

The plaque award is planned as a yearly event by the National Guard Association of the U. S.

Col. Nowell Didear, Commander of the Texas Wing, presented the award at special ceremonies to Lt. Col. James T. Crump, 149th commander.

The 149th also received high rating in the recent Operational Ready Inspection, reports Convair field service representative, Joseph L. A. Gallant.



MOMENTOUS OCCASION—Few General Dynamics employees have reached the milestone observed last month by Walter Koch of GD/Astronautics' Plant 19 sub-assembly (Dept. 718), shown here as President J. R. Dempsey presented him with 40-yr. jewel.

'First' at Pomona

Photography Offers Solution For 'Missing' Fingerprints

Fingers that can not be printed and no record of birth would probably be an advantage to a criminal.

But for Rose Vulyak of parts control and standards (Dept. 6) the situation was a nightmare, happily solved, however, with assistance of industrial security officers and a "first" in photography at GD/Pomona.

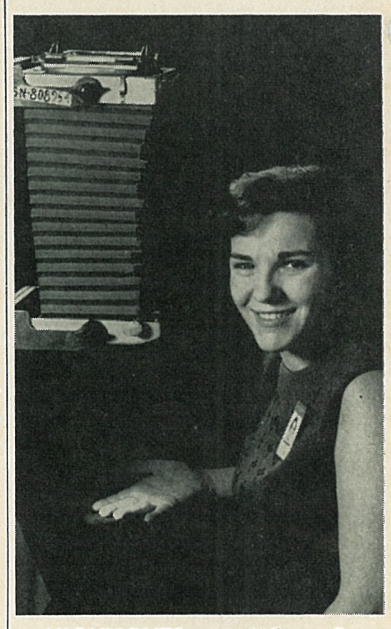
Rose's problems arose last June when she applied for employment. An inquiry to her hometown of Youngstown, Ohio, disclosed there was no record of her birth. It was no small effort, but with assistance from a lot of people, a birth certificate was obtained and the first hurdle taken toward security clearance.

Meanwhile, a second problem developed. Repeated attempts failed to produce readable prints of four fingers—ring and small finger on each hand.

Rose, who had never been fingerprinted, recalled that seven years ago her hands were badly burned in a home accident. Her son, then 3 years old, had started a fire in a wastebasket. The four fingers were injured when she carried the burning material outdoors.

J. V. Householder of industrial security, an ex-FBI agent, worked with engineering photo lab personnel last month to secure photos of the finger tips. Using cross lighting as low as possible, pictures were obtained in which the ridges were clearly defined.

Rose is the only GD/Pomona employee with photos instead of prints of her fingers on file. Together with a brand new birth certificate she now has positive proof of citizenship, and identification.



HIGHLIGHTS — When Rose Vulyak's fingers could not be printed for security identification, GD/Pomona photographers furnished pictures. Using cross lighting, ridges on fingers burned seven years ago, were clearly defined.

C-141 Idea Produces Christmas Windfall

Two Convair Dept. 115 men put some extra Christmas money in their pockets with an Employee Suggestion that will save the division time and money on the milling of C-141 parts.

N. L. Valentino and C. J. Popp each received $93.06 last week as partial payment. They will get like sums in six months.

They devised a two-part template and profile fixture which cuts downs setup time and processing of parts during machine shop operations. Their pay-off was based on the time saved—one hour on each of 1,152 parts.

POMONA'S MAIL ADDRESS CHANGED

GD/Pomona's mailing address has been changed following opening of a new Pomona post office serving division. The box number was changed from 1011 to 2507.

New Value Engineering Manual Given to Design Engineers

A new Value Engineering tool has been placed in the hands of GD/Astronautics design engineers as distribution was completed last month on the first section of the division's Design Cost Manual.

Section I—Mechanical—is the first of three parts presently scheduled to comprise the Cost Manual. Sections dealing with electrical/electronic design, and testing, will be forthcoming as they are prepared.

The manual's purpose is basic to GD/Astro's philosophy of producing the highest quality products for the lowest feasible cost. By using the Cost Manual, division engineers can deal as never before with product cost at the crucial time—during the design phase prior to production release.

As the manual itself explains, a designer is initially concerned with functional or performance aspects of a design; then, typically, discovers several ways to do the job.

Here is where cost must enter the picture: if the designer can properly assign cost values to his alternative plans, he can direct his design along the minimum cost path while achieving required performance, schedule reliability, maintainability and quality goals.

Within its nine chapters, the Mechanical Section provides data, charts, and explanations which permit the designer to assign reasonably accurate costs to "nuts and bolts" aspects of his design.

He can determine, for example, the cost of materials, compare the relative fabrication expense for machining, casting, forging, extrusion and sheet metal. The volume goes so far as to consider that weight is a cost factor since more men — or machines — are needed to handle heavy parts.

Preparation of the Cost Manual is a study in cooperation, both between GD/Astro departments, and other General Dynamics divisions.

Produced in the VE section of research, development and engineering (Dept. 521-0), where original research supplemented by trade journal analysis turned up much of the data, the book also draws on information supplied by material department, GD/Pomona, GD/Convair and GD/Fort Worth.

The VE function within Dept. 521-0 will periodically review all portions of the manual to insure that material is kept up to date through appropriate revision.

Spectators Flock To Charger Movie

Convair's eight-minute color movie depicting development of the Charger drew so much attention at a recent Washington, D. C., showing that the film wore out before all the crowds lined up had a chance to see it.

"A Bird In Hand," as the film is appropriately titled, made its debut at the Association of the U. S. Army annual meeting the middle of last month. Nearly 2,000 spectators, in groups of 10, crammed the General Dynamics Theater during the three days (Nov. 16-18) to view the story of the company's revolutionary counter-insurgency plane from concept to completion.

The movie was run continuously—10 hours a day—until the film gave out from usage.

"One thing about old Adcock . . . when he makes a test of rocket fuel he finds out first hand . . ."

KEY READERS — Examining early "first edition" copy of new GD/Astro Design Cost Manual with W. W. Withee, vice president — engineering, seated, are F. D. Applegate, left, and Andrew Kalitinsky, engineering assistant program directors for Space Launch Vehicles and Centaur, respectively; and C. J. Dunn, program director, Atlas Weapon System.

GD

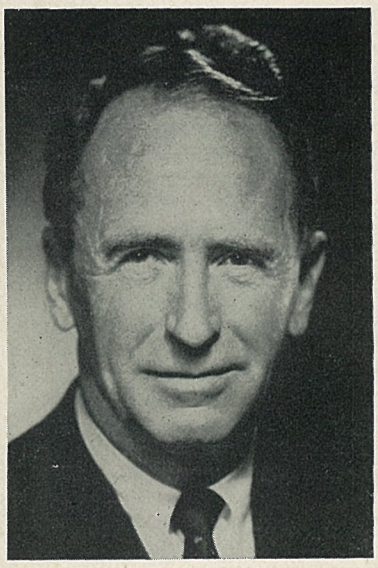
SAN DIEGO EDITION

GENERAL DYNAMICS NEWS

Vol. 17, No. 26 PUBLISHED BY GENERAL DYNAMICS CORPORATION Wednesday, December 16, 1964

Seasonal Greetings From Roger Lewis

"For 2,000 years, there has been no better way of expressing Christmas than 'Peace on Earth to Men of Good Will.' Peace remains an uneasy thing today, but during 1964 the world has moved closer to its reality and will, we pray, do so again in 1965.



"The people of General Dynamics have an important part in helping to achieve that age-old hope. In every way that we can continue to advance it, we enrich our own lives and help ensure the happiness of our future generations.

"To each of you and to your families let me express my wishes for a Happy Christmas and for a rewarding New Year ahead."

Roger Lewis
President

Group Insurance Cost Cut Sought

"Use but do not abuse your group insurance benefits."

This was the admonition this week of GD/Convair President J. H. Famme in which he was joined by D. C. Prim, GD/Electronics manager at San Diego, and C. V. Shannon, Stromberg-Carlson SD manager.

In cooperation with a Corporation-wide program of careful accounting regarding insurance claims, Famme pointed out that success conceivably could result in cash refunds, reduced weekly premium costs, or a moratorium on premium payments.

"Premium costs are increased whenever claims paid by the insurance company exceed premiums paid in," Famme explained. "However, when the premiums amount to more than claims paid out, it means that some of the premiums will be returned to employees and the divisions.

"To each employee, this can mean a cash refund, or a moratorium on premiums, or a reduction in weekly premium costs."

From June 30, 1963, through June 30, 1964, Convair employees and the division paid $1,296,105 for group insurance benefits. GD/Electronics and Stromberg-Carlson facilities in San Diego paid a total of $336,957 during the same period.

Specific ways in which each individual can help reduce group insurance costs are:

File group insurance claims for legitimate charges only.

Discuss fees with physicians, hospital, etc., whenever possible before expenses are incurred.

Make sure that the group insurance plan pays only for those services and supplies actually received.

"We want all valid claims to be paid as quickly as possible," said Famme. "But we want claims that are not valid to be resisted as strenuously as possible. Here is a chance for all of us to save money and reduce our insurance costs."

GD/E Advances In Miniature Circuitry Field

General Dynamics/Electronics at San Diego is moving ahead into the new field of micro-electronics with its first order of tiny amplifiers using the planer welding process to be delivered this month to California Institute of Technology's Jet Propulsion Laboratory.

Although the planer welded circuitry process was originated at Astronautics a couple of years ago, GD/E's advanced development of the flat two-dimensional circuitry concept resulted in the JPL contract.

Sixty miniature (1x2x⅛-in.) pre-amplifiers and a like number of intermediate amplifiers, designed and developed by GD/E, will be used for a JPL infrared detection experiment. The prototype amplifiers will be assembled with other equipment for system testing. If successful, this type of electronic flatpacks may be destined for use in future space probes.

The current micro circuit techniques are a culmination of almost a year's development at GD/Electronics under a company-sponsored micro-electronics program.

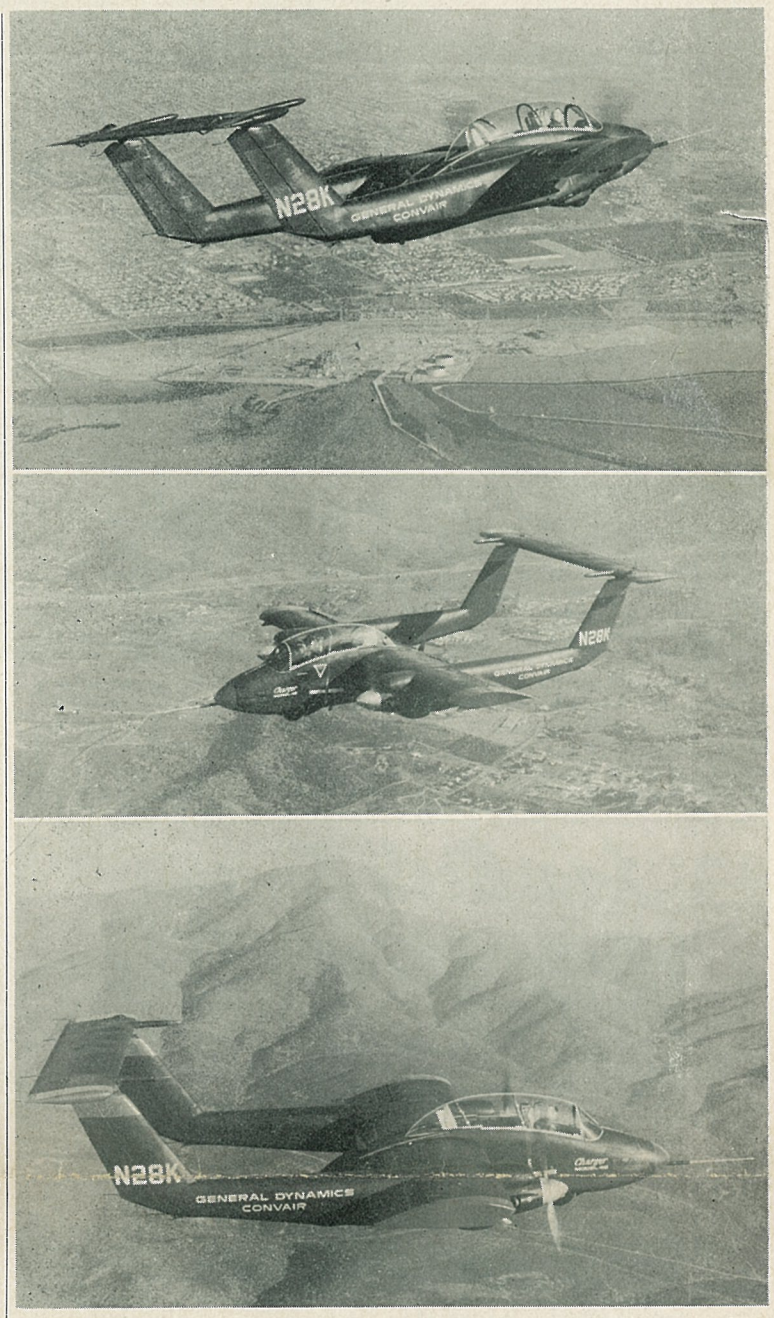
D. A. Graybill, project engineer in charge of GD/E's microelectronic laboratory, explained that the welded flat assemblies can be produced 8 to 10 times cheaper than the conventional three-dimensional "cordwood" type in which resistors, capacitators, and semi-conductor devices are stacked and welded at the ends. Also, the new type of micro-electronic circuitry provides increased reliability and more versatility since combinations of a wider variety of size

(Continued on Page 2)

Christmas Windfall Results From Idea

Fred H. Felchlin of Convair Dept. 119 received a substantial Employee Suggestion pay-off last week for his new method of core milling of material for C-141 parts.

His ES put into effect a method which will eliminate flags and uneven surfaces of core blocks received from vendors and save the division $1,897.30 on 56 pieces of core stock on hand. His first payment amounted to $94.87. He will receive a final payment in the same amount in six months.



IN FLIGHT — Convair's new multi-purpose craft, Charger, flies over San Diego county area in one of three flights Dec. 4 as it enters intensive flight test program during which it will be put through full performance spectrum proving short take-off and landing capability. In later tests, plane will clear 50-ft. obstacle in less than 500 feet from standing start.

Faithful Little Joe II Does Its Job Perfectly

(Photo on Page 3)

Convair's first attitude-controlled Little Joe II launch vehicle boosted an engineering model of the Apollo spacecraft to 31,000 feet altitude in what NASA officials said appeared to be a letter-perfect flight last week (Dec. 8).

"Everything worked perfectly," said J. B. Hurt, Convair's Little Joe II program manager, who with Convair President J. H. Famme, was on hand to witness the early morning firing at White Sands Missile Range, N. M.

The firing, third for Little Joe II launch vehicles, was part of the in-flight testing of the Apollo launch escape system by the National Aeronautics and Space Administration. The test simulated a Saturn flight requiring an emergency separation of the Apollo spacecraft from the launch vehicle.

Little Joe II was deliberately knocked off course by a ground signal about 37 seconds after launch at an altitude of about six miles. The escape system's thrust engine then ignited and pulled the boilerplate spaceship clear in the simulated emergency. Parachutes floated the Apollo capsule safely back to earth near the planned recovery site.

The test flight, which lasted about 7 minutes, was described as an important step in the U. S. timetable for landing men on the moon.

First Little Joe II launch was made Aug. 28, 1963 to demonstrate the vehicle's overall capacity to achieve Apollo test conditions. Second flight, May 13 of this year, was a successful prior boosting of an engineering model of the Apollo spacecraft on the first in-flight test of the launch escape system.

Robert O. Piland, deputy manager of the Apollo Spacecraft Program, and E. M. Fields, assistant chief, test division ASPO of NASA's Manned Spacecraft Center, in a press conference shortly after launch said that "Little Joe II performed successfully providing nominal trajectory conditions" and that pre-

(Continued on Page 2)

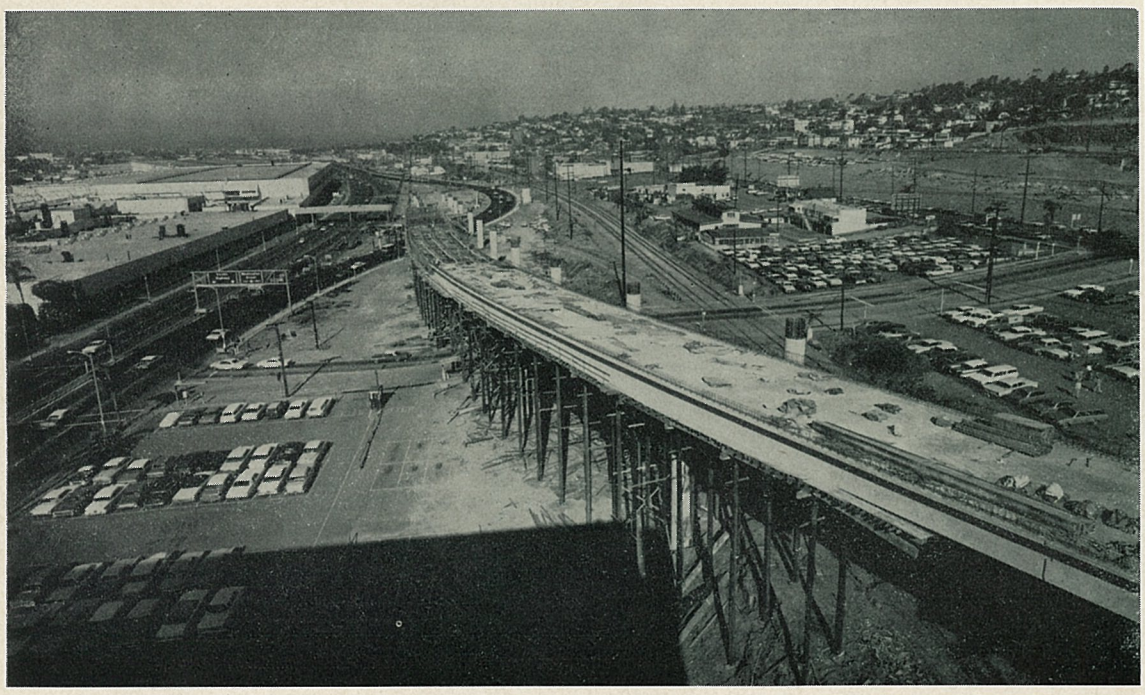
Collection Sparked For Tecate's Needy

Large white cans were placed last week at all Convair Plant 1 entrances as containers for the Christmas collection for Tecate.

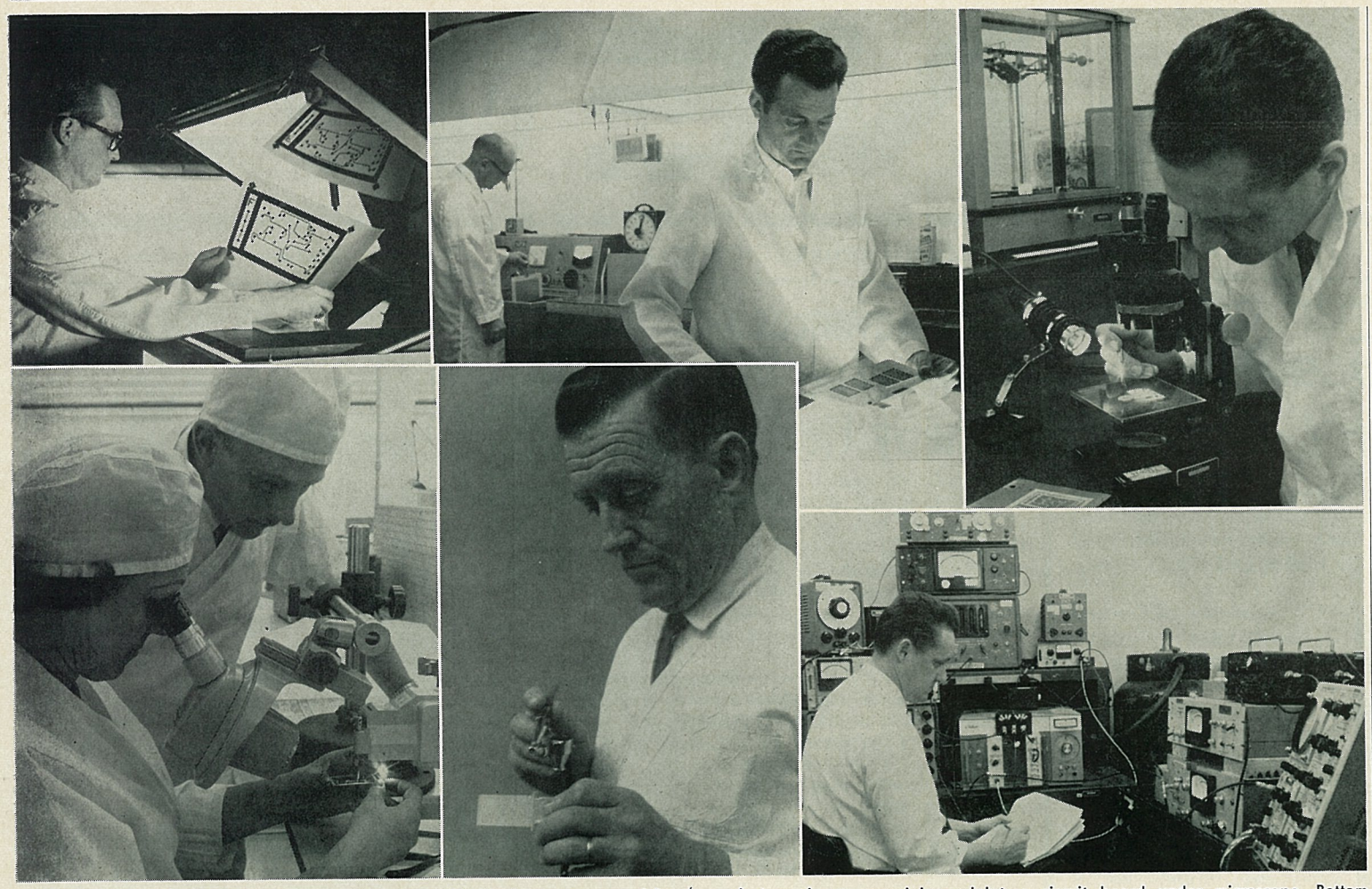
The Christmas goodwill drive is sponsored by Convair Management Club to help bring some of the necessities to needy people in the border town.

Everyone is urged to contribute what they can—food, clothing, toys, and usable kitchen utensils.

The committee, headed by James McSparron, will deliver the presents next week.



FREEWAY PROGRESS—Shot looking north from top of Bldg. 19 shows newly-completed Washington St. exit from Pacific Hwy. along east side of Convair Plant 1 and overhead viaduct to connect with Crosstown Freeway now under construction.



GD/E MICRO ELECTRONICS—Steps in planed welded circuitry process used in producing GD/Electronics—SD tiny amplifiers show: top (from left) Jim Lasley, GD/E mechanical engineer, placing circuit board master on back-lighted copy board for photographic reduction; Jim Helton, engineer, exposing sensitized copper-clad mylar sheets in printer before developing process (in background, Gil Boldman, engineer, removes sheets from nickel-plating tank); D. A. Graybill, project engineer, examining miniature circuit board under microscope. Bottom row (from left): Valerie Martineau, production electronic assembler, welds on components under microscope in GD/E's new resistance welding area supervised by Charles Tschiderer (observing Valerie's work); Bob Hogan of manufacturing development lab paints completed amplifier package "lullaby" blue before it goes to (far right) Ed Novak, electronic engineer, for intensive testing.

GD/E Advances In Miniature Circuitry Field

(Continued from Page 1)

and shapes of components are possible in a given volume.

Special design problems involved in the JPL amplifiers were the size—total volume of space had to be kept to ¼ cubic inch and ⅛-in. maximum thickness—and constant performance over a wide temperature range. The amplifiers are required to operate in direct contact with infrared sensors at minus 192 degrees Fahrenheit.

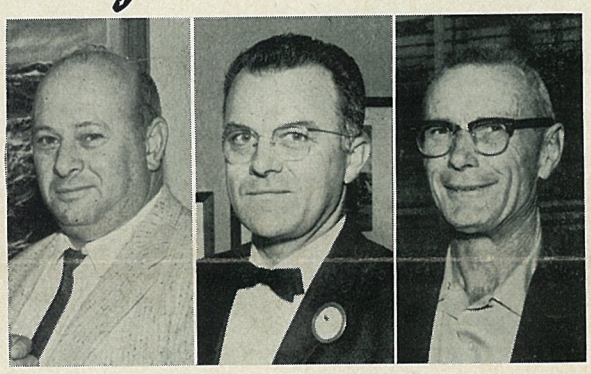
First step in production of the tiny circuit boards, base of the flatpack assemblies, is the 5 to 1 photographic reduction of drawings by high-accuracy, high-precision cameras. Negatives are transferred to sensitized copper-clad mylar sheets, .0045-in. thick, then etched and nickel plated. Micro-discrete parts (tiny individual components) are mounted on the little boards under microscopes, using the resistance welding process.

The boards are encapsulated in foam and nickel-plated to provide an electro-static shield as protection against noise. After painting they are put through intensive testing in a special chamber capable of providing temperatures as low as minus 300 degrees F.

Graybill said that development will continue next year on different applications of the process. One definite forward step will be development of processes for the interconnection of silicon wafers using .001-in. diameter wire which will allow circuitry similar to that in the JPL amplifiers to be placed within a transistor can, ¼-in. high by ¼-in. diameter—approximately the size of a small pencil eraser. Thermo compression and ultrasonic bonding processes will be used.

GD/E men making up the micro-electronic development team are Jim Lasley and Ed Novak, design specialists; and engineers Jack Helton and Gil Boldman.

Log Book Entries



Sharing honors on completion of 25-years service with GD/Convair are, from left, Joseph Arena, Dept. 141, W. C. Gilger, Dept. 6-53, and G. L. Farrington, Dept. 401-1.

VETERAN — James P. Syren, manager of contracts for Stromberg-Carlson, is presented with 30-year service emblem by C. V. Shannon, S-C manager-San Diego, at left.

Service Emblems

CONVAIR

Service emblems due during December.

Forty-year: Dept. 93-0, Jane F. Dunn.

Thirty-year: Dept. 6-01, J. L. Wainwright.

Twenty-five-year: Dept. 6-04, Eugene Fitzsimons; Dept. 25-0, W. H. Apple; Dept. 131, G. L. Scheibel Jr.; Dept. 400-1, A. M. Walden, J. S. Williams; Dept. 401-5, C. G. Fletcher.

Twenty-year: Dept. 34-6, Inez L. Markel; Dept. 115, G. D. Carroll; Dept. 116, Bertha A. Ross, Laura L. Wood; Dept. 131, A. A. Martin; Dept. 516-0, Merle Fullerton.

Fifteen-year: Dept. 6, A. D. Bush, D. M. Thomas; Dept. 14, Fannie L. Agner, Gertrude J. Silva; Dept. 115, P. E. Ewan.

Ten-year: Dept. 6, W. E. Butterfield, J. C. McCafferty, E. H. Price Jr.; Dept. 401-4, J. L. Norris.

ELECTRONICS

Twenty-year: Dept. 4074, G. C. Allin; Dept. 6854, J. W. Crooks Jr. (due Oct. 3).

Fifteen-year: Dept. 1763, Hope A. Ryno.

Ten-year: Dept. 6853, R. B. Williams; Dept. 6854, G. W. Eaton (due Nov. 23).

STROMBERG-CARLSON

Thirty-year: Dept. 11-00, J. P. Syren.

Ten-year: Dept. 55-50, Wilma M. Brice; Dept. 82-00, Susanne K. White.

Awards

CONVAIR

Employee Suggestion Awards approved for periods ending Nov. 27 and Dec. 4.

Dept. 119, F. H. Felchlin, $94.87 (partial payment); C. F. Kahler, $10; V. L. McKerrihan, $10.

Dept. 141, E. L. Wallin, $10.

Dept. 400, F. D. Slavens, $10.

Cost Improvement Proposals approved for the same periods.

Dept. 34, M. G. Tambornino.

Dept. 101, G. W. Oliver.

Dept. 115, F. E. Reed (two proposals).

Personals

CONVAIR

My thanks to the many Convair friends for their kindnesses and sympathy when it was needed at the death of my mother, Nov. 21.

S. W. Kellogg, Dept. 400.

Retirements

CONVAIR

CONSTANT—David M., Dept. 42-8. Seniority date Dec. 15, 1950, retired May 18.

JOHNSON—Frank J., Dept. 93-6. Seniority date Feb. 8, 1940, retired Nov. 27.

MAISHEFF—Nicholas T., Dept. 101. Seniority date Oct. 28, 1935, retired Nov. 27.

MONTGOMERY—Noah J., Dept. 25-2. Seniority date Jan. 22, 1941, retired Nov. 30.

STEWART — Elwood B., Dept. 102. Seniority date Feb. 23, 1947, retired Nov. 30.

General Dynamics NEWS

Published by General Dynamics Corporation, One Rockefeller Plaza, New York, N. Y. 10020; with editorial headquarters at 3302 Pacific Highway, San Diego, Calif. 92112, P.O. Box 1950, telephone 296-6611, ext. 1071. Logan Jenkins, editor-in-chief.

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* * *

Affiliated editions of General Dynamics NEWS are published in Rochester, N. Y., covering GD/Electronics and Stromberg-Carlson, editorial offices, 100 Carlson Road, HUbbard 2-2200, ext. 2555. Fred E. Voss, editor; and at Groton, Conn., covering GD/Electric Boat, editorial offices at Groton, 446-3129. Ed Caffrey, editor.

Faithful Little Joe II Does Its Job Perfectly

(Continued from Page 1)

liminary assessment indicated that data were obtained as desired.

Besides Famme and Hurt, other Convair personnel witnessing the launch were Dudley Digges, director of contracts; O. W. Harper, manager of customer service and flight test; J. R. Burtt, NASA requirements engineer.

In the blockhouse during launch were Jim Lampman, test conductor; D. G. Moody, deputy program manager of engineering. Jerry Solheid pushed the button to start the timer for the launch countdown as he has in the two previous shots. At the attitude control system panels were Floyd Wundrow and Marv Crossley. Clyde Glasson was in charge of reaction control analysis and Tom Buchanan, reliability.

Closely monitoring all operations, preceding and during launch, were H. K. Cheney, Little Joe II deputy program manager for launch operations; A. W. Kellogg, in charge of off-site engineering; J. S. Boaz, off-site administration and materials; O. L. Todd, in charge of assembly and maintenance; Earl Covington, quality control, besides the some 100 Convair people assigned to their functions.

Xmas Tree Lights Restricted In-Plant

Christmas trees brought in-plant by departmental groups must be decorated by fire-proofed materials and may not bear electric lights of any kind.

M. C. Val Dez, Convair safety engineer, warns that there is great risk of fire due to shortages and improper wiring connections.

CINEMA 21 DISCOUNT COUPONS AVAILABLE

Convair employee services, Bldg. 32, Plant 1, now has free coupons available entitling employees to a 59-cent discount on admission to the movie, "Youngblood Hawke," now showing at Cinema 21. Coupons are valid Sunday through Thursday evenings and at all matinees.

Year-End Con-Trib-Club Report:

General Dynamics/Convair Employees' Con-Trib-Club Charity Fund
Statement of Financial Condition—September 30, 1964
and
Receipts and Disbursements—October 1, 1963 to September 30, 1964

ASSETS

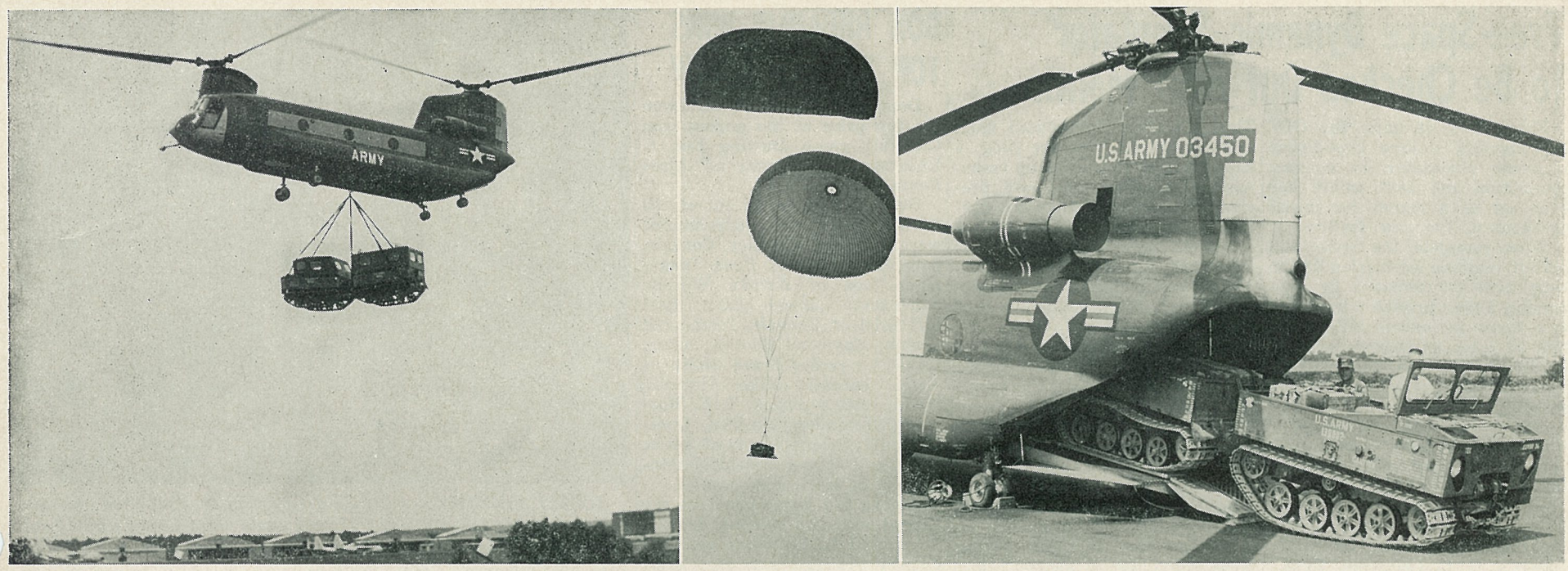
Total Assets—Cash in bank	$24,985.83

LIABILITIES AND SURPLUS

Account Payable—Emergency Aid Fund	$ 588.81
Surplus Fund	24,397.02
Total liabilities and surplus fund	$24,985.83

RECEIPTS AND DISBURSEMENTS
October 1, 1963 to September 30, 1964

Total Receipts		$74,344.93
Disbursements		
American Cancer Society		$ 3,000.00
Arthritis and Rheumatism Foundation		1,000.00
Boy Scouts of America—San Diego County Council		1,500.00
Children's Dental Health Clinic of San Diego		1,000.00
City of Hope		500.00
Crossroads Foundation		500.00
Family Service Associations:		
Foothills	$300.00	
Homemakers	700.00	
Imperial Beach	250.00	
San Dieguito	250.00	1,500.00
Girl Scouts Council of San Diego		500.00
John Tracy Clinic		250.00
National Cystic Fibrosis Research Foundation		250.00
Pathfinders of San Diego		500.00
Salvation Army		800.00
San Diego Children's Home Association		450.00
San Diego Citizens Scholarship Foundation		1,000.00
San Diego County Association for Retarded Children—East County Chapter		500.00
San Diego County Epilepsy Society		500.00
San Diego County Heart Association		2,000.00
San Diego Mental Health Association		500.00
San Diego Society for Crippled Children		3,000.00
Sunnyside Residential Care Facility		500.00
Tuberculosis and Health Association		500.00
United Funds—Alamagordo, New Mexico		150.00
—Las Cruces, New Mexico		100.00
—San Diego County		40,000.00
United Jewish Federation		500.00
Volunteers of America		1,000.00
Y.M.C.A.		1,000.00
Total charitable contributions		$63,000.00
Transfers to Emergency Aid Fund		7,802.57
Audit expense		225.00
Office supplies		11.84
Total disbursements		71,039.41
Excess—receipts over disbursements		$ 3,305.52



AIRBORNE — Canadair's "Dynatrac," tracked troop and cargo transport demonstrated its capabilities recently at U.S. Army Combat Development Center, Fort Bragg. At right Dynatrac backs into helicopter and at left is hauled aloft by another means. In center, rear unit parachutes to ground.

Pilots Flying in DORA View 'Terrain' Below

An ingenious visual-display system at GD/Fort Worth enables Air Force and Navy crewmen to view the terrain over which they're "flying" in DORA, regardless of the type mission.

DORA stands for Dynamic Operator Response Apparatus. It is a computerized, simulator-like device which records a pilot's many cockpit reactions on a wide variety of programmed flights.

From the wealth of data obtained in the simulated sorties, human engineers can analytically contribute to the cockpit's design.

The display system is in two parts: an Air Force SMK-23 simulating system for on-the-deck sorties; and a series of photographic plates for all other type missions.

Both systems transmit pictures to crewmen through 30-inch screens in front of the cockpit.

When plates must be switched to effect a rather sudden change in flight environment, the pilot experiences "haze" for about 30 seconds.

Plates represent areas in varying size. The high-level photographic plate, for example, represents an area about 50 miles across. The lower-altitude plate is an area of only about five miles.

The amazingly realistic terrain that DORA crewmen see during on-the-deck missions below 500 feet is actually three strips of foam-rubber "mountains, valleys and fields."

Each strip, 14 feet high and four feet across, represents an area about 70 miles long and 10 miles wide. The strips revolve mechanically. As they do, a television camera, backed by banks of fluorescent lights, records the movement.

After viewing one strip, the camera moves over on a track to the next strip. The result is a virtually uninterrupted low-level flight of considerable distance.

All pictures appear in black and white, except Navy landings. Carrier landings include red and green color to simulate the Navy's "meat ball" system of telling the pilot whether he is above or below the desired glide slope.

Also slated for installation soon on DORA is an ingenious eye-camera. The device pinpoints a pilot's visual fixation at any given moment. Film from the camera is synchronized with the recording to provide both stimuli and resulting pilot-action data.

PUSS 'N BOOTS — Barbara Freeman, receptionist in GD/Convair vendors' office, strikes buccaneer pose as she models what appear to be giant flippers. Actually, they are exhaust ducts for 880 transport cabin pressurization system fabricated for 880 spares.

GD Men to Attend Quality Symposium In Miami Next Month

General Dynamics men will take active roles in the National Symposium on Reliability and Quality Control to be held Jan. 12-14 in Miami Beach, Fla.

J. Y. McClure, Corporate reliability director, will serve as moderator on a panel, "Reliability, Cost and Contracting," during the conference which is jointly sponsored by professional societies.

GD/Astro's E. S. Winlund, Dept. 140-0, will present a paper, "Cost-Effectiveness for Optimal Reliability and Maintainability," while a paper by GD/Astro's C. C. Campbell, Dept. 652-5, "High Reliability for Space Launch Vehicles," will be published in the symposium "Proceedings."

Serving as area publicity chairmen for the national event are D. B. Tallon, GD/Fort Worth Dept. 186-2, and W. G. Bjornson, GD/Astro Dept. 527-0.

Safety Standings

Division achieving best record:

Current month: Astronautics, Pomona, Electronics-Roch., Convair, Electro Dynamic all 0.00 for frequency and severity.

Year to date: (1) Pomona, (2) Convair, (3) Electronics-Roch.

Division showing best improvement:

(1) Pomona, (2) Canadair, (3) Convair.

House Committee Briefed by Convair

Convair's oceanography program was outlined in detail in a presentation to the Subcommittee on Oceanography of the House of Representatives Merchant Marine and Fisheries Committee early this month.

The subcommittee, headed by Rep. Alton Lennon (D.-North Carolina), was in San Diego Dec. 2 during a nation-wide tour to gather up-to-date information on oceanography programs.

Robert Devereux, Convair's oceanography program manager, described the development of the long-range telemetering buoy program for Office of Naval Research.

CALIF. DISABILITY BITE TO INCREASE IN 1965

General Dynamics people in California are reminded that a larger bite will be taken out of their salaries next year with the increase of the wage base for contributions to state disability insurance, effective Jan. 1, 1965.

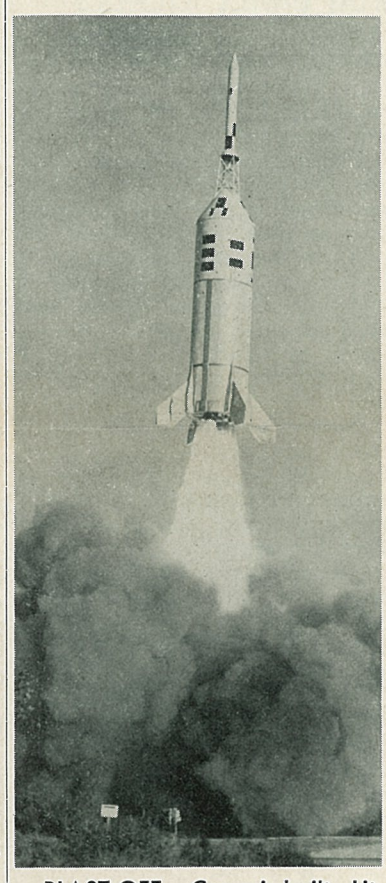
Tax rate remains at one per cent, but this coming year it will be deducted from the first $5,600 earned. Currently, the base is $5,100.

Tracked Troop Vehicle Given Service Tests

"Dynatrac" troop and cargo transport vehicle, developed by Canadair Limited with backing of the Canadian government, has been undergoing service trials in Norway, Southeast Asia, Alaska, the U.S. and Canada and is scheduled for additional trials with the British Army. It ultimately will be tested in Europe, too.

The vehicle, light enough to be transported by helicopter or transport airplane, has virtually unlimited off-road mobility and can operate in all climates from -65 degrees F. to 115 degrees F, with a 2,000-lb. payload or 10 fully equipped soldiers. It has two tracked units linked by a universal joint. All four tracks are driven from a Chevrolet Corvair air-cooled flat-six engine. Steering is achieved by differential operation of a pair of hydraulic jacks at the universal joint.

Maximum land speed is 30 mph. The vehicle also will operate in water.



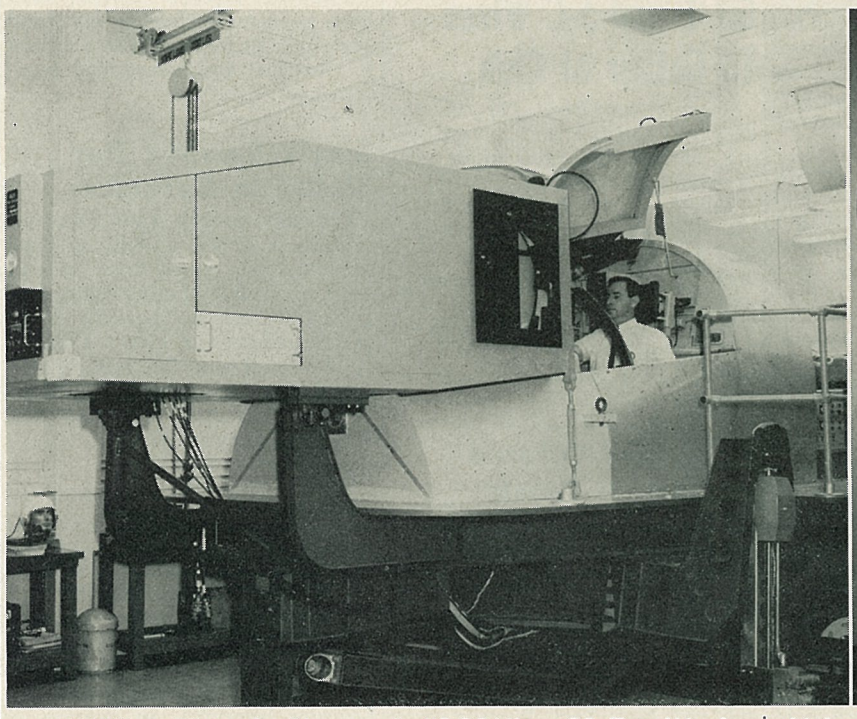
BLAST-OFF—Convair-built Little Joe II launch vehicle heads skyward as it boosts dummy Apollo spacecraft 31,000 feet high in successful launch Dec. 8 at White Sands Missile Range, N.M. Test operation for NASA was hailed as "letter-perfect."

DOYLE SPEAKER ON VALUE TOPICS AT TWO MEETINGS

A total of over 600 heard C. W. Doyle Jr., GD/Fort Worth value control administrator, deliver two presentations on "Value Engineering" recently.

Over 400 heard his speech before the Tinker Administrative Club, Oklahoma City Air Materiel Area, Tinker AFB, Oklahoma City.

Doyle spoke to over 200 at an all-day seminar, "Profit Improvement Through Value Engineering," in Houston. The event was sponsored by American Institute of Industrial Engineers, Houston Chapter, and Industrial Engineering Department of the University of Houston.



REALISM — Pilots checking out in "DORA" at GD/Fort Worth, found experience almost as realistic as actual flight. Contributing to effect was 30-inch screen carrying photos of "terrain" over which they were "flying." Scenes varied to suit missions, from high altitude to "on-the-deck." Left above S. W. Nichols, design engineer, is in cockpit. At right is Chet Zimmerman, DORA designer, inspecting one of photo plates. This simulates high-altitude view.

'Free-Space Dynamic Simulator' To Be Checked Out Next Month

Fabrication of units for GD/Astronautics' unique Free-Space Dynamic Simulator is nearing completion and next month has been set as a target for initial checkout of the new facility.

When complete, the device will permit realistic simulation of the weightless environment by supporting a man in such a way that any force he exerts will cause him to react as though he were in free-space. The unit will be used for study, design and research purposes.

Much of the simulator's "magic"—virtually frictionless pitch, yaw and roll through 360°, plus equally unrestrained vertical and horizontal movement—hinges on use of "air bearings" developed by GD/Astro's E. L. Christian, Dept. 290-2.

The simulator project was started a year ago in life sciences by R. E. Urmston, Dept. 262-3, who suggested that free-space conditions could be duplicated through the use of air bearings. With Christian, he has been responsible for development of the design since that time.

The simulator—looking vaguely like an over-size kitchen stool—towers some 15 feet over the four "air bearing" pads on which it rides. A frictionless "air spring" provides for vertical motion, and gimballing for rotation along three axes is provided by a like number of additional air bearing sets.

Coefficients of friction are expected to be below .00001, since bearing surfaces are separated in operation by a thin "cushion" of air.

Bearing design is such that the device is virtually self-aligning. The arms, for example, are capable of carrying loads in any position due to use of combined radial and thrust bearings.

Besides the advantage of extreme sensitivity, the device has the further merit of being totally self-contained when fully operational. Although factory air will be used to feed the bearings during checkout, a bottled, on-board supply of compressed air or nitrogen will be used during actual operation.

The all-magnesium (for lightness) simulator structure was fabricated by Dept. 290 at Plant 19, with Dept. 452 at Plant 71 handling work on several of the larger units.

Air bearings also played an important role in creation of the ultra-smooth terrazzo floor on which the simulator will ride. This 25 by 33-ft. area had to be completely level, since the slightest tilt would cause the frictionless simulator to coast to the low point.

With an assist from E. J. Barnett, Dept. 451, for precision optical monitoring, a special carriage supported by air bearings was built and fitted with a diamond grinder. This unique tool was used to finish the floor to gemstone smoothness, and level (relative to the earth's center) to within one thousandth of an inch in 10 feet!

(Creation of the simulator floor to such precision is a story in itself. The two-inch thick terrazzo surface caps a 14-inch thick concrete subfloor, which in turn rests on six inches of compacted sand. Thus, the floor is isolated from the general floor of the Bldg. 4 simulator area to break up transmission of vibrations, and preclude the hazard of floor tilt during building settling.)

Human factors studies will be one of the simulator's first uses. The man-carrying bracket is designed to carry a 500-pound load—to accommodate a large man wearing a spacesuit, biopack, and any tools or equipment needed for a variety of experiments.

Questions to be studied with aid of the simulator deal with such things as "anchor points," how to support an astronaut so he can function effectively in a weightless environment; transfer and location, the problems an astronaut may face in moving from one place to another; tool use, maintenance and repair, reactions on application of force and effort, eye-hand coordination and capability, etc.

Besides such life sciences uses, indications are that the simulator will find additional application in hardware studies, including design, test and evaluation of propulsion packages, autopilot response, and docking hardware.

Christmas in Mexico Tour to Begin Dec. 19

Final briefing for all tourists signed for the "Christmas in Mexico" tour will be tonight (Dec. 16) at 7 p.m. in the Convair executive dining room, Pacific Hwy.

James Hardison of Convair, conductor of the two-week trip, will assign train compartments and give last-minute instructions.

The group leaves Mexicali this Saturday to celebrate the holiday season in Mexico City. They return to San Diego on Jan. 3.

TIME RUNNING OUT FOR DANCE TICKETS

There is just one day left for GD/Electronics and Stromberg-Carlson employees at San Diego to purchase tickets to the annual Christmas party.

Tomorrow (Dec. 17) is the final day for ticket sales for the dinner-dance set for this Saturday evening (Dec. 19).

As in the past, the affair will be held in the main ballroom of Hotel del Coronado. Social hour is at 7 p.m., dinner at 8, followed by dancing from 9 to 1 a.m. A raffle will be held at 10 p.m.

Dinner will be buffet with baked ham, fried chicken, meat balls and spaghetti the choice of entrees, supplemented with vegetables, salads, appetizers, and French pastries.

Special feature of the evening will be a "swim" dance contest with prizes.

Bart Hazlett's Orchestra will play for dancing.

Tickets at $3 per person may be obtained from departmental representatives at both Plant 1 and Plant 2 facilities.

SD Groups View Charger Up Close

San Diego members of the Society of Automotive Engineers and American Institute of Aeronautics and Astronautics had a look at Convair's new multi-purpose Charger plane last week when they met at Convair Dec. 9 for their regular monthly meeting.

J. E. Fink, program manager, described the company-funded Charger program from design phases through the manufacture and testing of the prototype airplane. His talk was illustrated by slides and movies.

After the formal presentation, SAE and AIAA members and wives were escorted to the flight test hangar to view the Charger, along with its supporting systems and equipment.

LAPIDARY SHACK TO REOPEN JAN. 6

CRA Rockhounds' lapidary shack at Gillespie Field will be closed throughout the holidays, said Commissioner Dan Whorton. Final instruction will be given tonight (Dec. 16). No classes will be held until the workshop reopens Jan. 6. Next regular meeting of the Rockhounds will be Jan. 14.

RIFLEERS SET XMAS TURKEY SHOOT MEET

Astro Junior Rifleers will hold a turkey shoot and Christmas party, beginning at 8 a.m., Dec. 19, at the CRA Range, Gillespie Field.

DON RHEAUME WINS TOP PRIZE IN DRAW

Donald Rheaume of Astro won the top prize at the annual Gun Club big game drawing Dec. 8. Rheaume's prize was an Aires Penta Reflex camera.

Other names drawn out of the 92 in the hat and their awards were: William McColley, Convair, pair of binoculars; Fred Jungemann, son of Astro's William Jungemann, .22-cal. pistol; Earl McDaniel of Convair, Instamatic Kodak; Raymond Root of Astro, transistor radio; Bruce Smith of Astro, hatchet; Mike Alianelli, Astro, leather gloves; T. E. Morris of Stromberg-Carlson, hunting knife; George Landy of Astro, deer gamble; and Donald McDaniel, son of Earl, deer gamble.

Among big game listed on the entries were two javelina, downed in Arizona; a bear, one elk. The balance qualified with deer, most shot in Utah, although 8 were taken in San Diego county.

The 100 attending had the rare opportunity of hearing Ed Carey of Stromberg-Carlson describe his hunting expeditions in Alaska, illustrated by slides and movies.

IRC-Backed Seminar Open to GD Women

A business etiquette and self-improvement seminar is open to GD women under sponsorship of IRC. First class will be Feb. 4.

Edith Antelline Russell is instructor of the six-week basic course and follow-on advanced course which starts March 18. Classes will meet once a week in the House of Hospitality, Balboa Park, from 7 to 9 p.m.

Subjects covered will be office manners, social etiquette, speech, grooming, poise, figure control, wardrobe, personality development, make-up and hair styling.

Cost of the basic course is $13.50; advanced course, $19.50.

Registration forms are available at CRA headquarters.

Jr. Colleges Taking Spring Applications

Spring semester applications for enrollment in the three divisions of San Diego Junior Colleges are being accepted now with spring classes to begin Feb. 3, 1965.

Sites where applications may be processed are: City College, 1425 Russ Blvd., Room A-114; Mesa College, 7250 Artillery Drive, Room A-109; and applications for Evening College will be accepted and processed at either the City or Mesa College campuses.

These offices now are open from 8 a.m. to 8 p.m. During the Christmas vacation (Dec. 21, 22, 23, 28, 29, 30) the offices will be open from 8 a.m. to 4:30 p.m. Last day to file admission applications is Jan. 22.

GD/E and S-C Wives To Gather at Club

Tomorrow (Dec. 17) is the date set for the holiday gathering of all GD/Electronics and Stromberg-Carlson wives.

Luncheon will be at 1 p.m. at the University Club, 1333 - 7th St., preceded by a social hour starting at noon. A gift exchange will be held during the afternoon.

Next monthly wives' luncheon will be held on the regular meeting date, the second Thursday of January.

IRC Tours Offered To Distant Points

GD people can start planning their next year's vacations to practically any part of the world through package tours offered by Industrial Recreation Council.

IRC tours for 1965 at special group rates are offered to Hawaii, Mexico, Alaska, Europe, the Orient, and New York World's Fair.

Information on departure dates and costs are outlined in brochures now on hand at employee services at Convair.

TURKEY SHOOTERS — Bringing down birds with their prowess in Astro Junior Rifleers' Nov. 21 luck event were Convair and Astro sons: Steve Greer, John Tramposh, Steve Callow, and Gerritt Miller. They hold individual "egg" trophies.

EXTENDED WEEKENDS TO MARK END OF '64

General Dynamics people at California divisions and off-site locations can look forward to two long weekends over the year-end holidays.

Pomona division and all plants located in San Diego—Astronautics, Convair, GD/Electronics, Stromberg-Carlson, General Atomic—and off-site facilities in the state will get the Thursdays before Christmas and New Year's Day as bonus holidays.

Except for necessary maintenance and security functions, plants will be closed Dec. 24 and 25, Dec. 31 and Jan. 1. Work will resume at regular shift hours on Dec. 28 and Jan. 4.

AstroLens Will Dine At Christmas Party

AstroLens' annual Christmas party, Dec. 17, 7:30 p.m. at Campus Chuckwagon, will take the place of the regular meeting.

A charge of $2.70 per person will be made. The event will feature installation of club officers, selection of the print and slide of the year, award presentation, and a slide show.

Jay Hudson, GD/Astro Dept. 521-6, will be installed as president with Dick Lytwyn, Dept. 967-1, as vice president. Eric Wolf of GD/Convair, Dept. 6-53, is secretary-treasurer.

Engineering School At State Accredited

Of significance to General Dynamics people in San Diego working toward engineering degrees is the recent accreditation of San Diego State College's engineering school.

State's engineering school is accredited for a four-year period in aerospace, civil, mechanical, and electrical-electronic fields. Master of science degrees also have been authorized in civil and aerospace engineering, in addition to electrical and mechanical engineering.

Single Salvage Day Slated in December

Convair salvage yard adjacent to Gate 5, Plant 1, will be open for employee sales from 8 a.m. until noon this coming Saturday, Dec. 19. This is the only sales day scheduled at either Convair or Astro during the rest of the month as both yards will be closed over the Christmas and New Year's weekends.

JACK MALONE GOES TO ASTRO

Jack Malone, manager of the main Convair cafeteria at Plant 1 for Prophet Co. during the last year, has been transferred to the Astronautics Plant 71 cafeteria operations, according to W. E. Rickman, district manager. Charles Borgatta, in charge of Plant 19 cafeteria, will assume management of the Plant 1 cafeteria in addition to his present duties.

Swissair Flight Tests Conducted

GD/Convair and Federal Aviation Agency flight personnel have been in Zurich, Switzerland, the last week for flight tests of a Swissair 990A to certify it for operation with the tail de-icing systems deactivated.

Convair pilot John Knebel; R. J. Dunn, instrumentation engineer; Gene Whigham, flight test engineer; R. C. Peller, dynamics engineer, were joined by FAA pilot Dean Melton and Collier Walker, FAA flight test engineer, during the test program, Dec. 7-15.

Successful flight tests, establishing that the plane will react normally without use of the empennage de-icing system, will qualify both Swissair and American Airlines 990 versions for FAA certification.

Similar certification has been accomplished on Trans World Airlines' 880s and Japan Air Lines' 880-Ms.

Both Skill and Luck To Pay Off in Prizes

Turkeys, chickens, hams will be "targets" for marksmen competing in the annual open Christmas trap and skeet shoot of CRA Gun Club this Sunday, Dec. 20, at Gillespie Field Range.

All General Dynamics people, their families and friends are welcome to participate in the luck and skill event. Opening round is at 9 a.m.

Even the spectators will have a chance to win some of the valuable prizes if they submit their names in a luck shoot.

Winners in each five-man squad will get prizes. Entry fees depend on value of the items the competitors choose to shoot for.

Besides the main dishes for Christmas dinner, prizes will include bourbon, candy, tiki torches, hibachis, household items such as pitcher and glass sets, bathtowels, hunting equipment—gloves, knives, handwarmers, and other miscellaneous articles.

PACKAGE SPECIALIST ATTENDS GATHERING

J. J. Janssen, GD/Convair packaging specialist, represented the division as a member of the Preservation and Packaging Engineering Committee of Aerospace Industries Association at the winter meeting last week (Dec. 7-8) in St. Louis, Mo.

Bargain Christmas Dinner Promised

Prophet Company cafeterias serving General Dynamics installations in the San Diego area will feature their annual "bargain rate" Christmas dinner on Dec. 22.

Bill Rickman, district supervisor, reports ham will be the entree this year. A complete dinner (ham, vegetables, salad, beverage, dessert, roll and butter) will be available for just $1.

FIRST — Jane Dunn, senior cashier at GD/Convair, is first woman in company to receive 40-year service emblem. Enjoying occasion with her are, from left, Grayce Fath, J. D. Milling, controller, Jane, D. C. Wilkens, director of industrial relations, Dot Luscomb, Avis Clarke, Lucille Metcalf.

40 Years Later

Payroll Totaled Fifty When Jane Dunn Joined Consolidated

On Dec. 3, 1924, a nervous young woman, blond hair fluffed in puffs over her ears, reported for her first day of work with Consolidated Aircraft at Buffalo, N.Y.

This month that same individual, Jane F. Dunn, retires—first woman to attain 40 years with the company.

Jane, well-known as senior cashier at GD/Convair the last 20 years, was hired as a switchboard operator when she applied for a job with the small (50 employees) aircraft company. It had just moved to Buffalo from E. Greenwich, R.I., three months before.

She soon moved into accounting as paymaster and for the next 10 years was, in her words, "the whole payroll department." At that time all checks were signed by hand and Jane worked up speed until she could sign off over 750 an hour.

She was one of five girls chosen by Consolidated to make the move to San Diego in 1935. Lucille Metcalf, only other woman of the five still with the company, will observe her 40th anniversary late next year.

Jane said she was warned of the impending change of location, but didn't believe it, a few months before when a tea leaf reader told her she would make a move to a "place where palm trees grow"!

Although Jane will finish out the year with the company, her many friends will gather tonight at Valley Ho Restaurant to exchange memories and toast her years of faithful service.

Her future plans include travel. She hopes soon to circle the globe on a world trip.

Veteran GD Engineer, 'Cliff' Pasco Dies

O. C. "Cliff" Pasco, long-time GD design engineer who had been connected with most of the company's planes from the PB2Y3 to the C-141 project over the years, died Nov. 24.

He retired from Convair two years ago after 22 years with the company. He was one of the group assigned to New Orleans during the PBY program and transferred to the Fort Worth division at the end of World War II to work on the B-36. He returned to San Diego around 1950 with the B-36 modification program. In the years since, he had been involved in engineering design of the Convair-Liner series, F-102/F-106, 880/990 jet transports, and C-141 empennage.

GRINGOS — Convair Management Club group, part of some 250 who traveled by chartered buses and private cars for specially-arranged tour to Mexican border town of Tecate as guests of Cuahutemoc Brewery and Tecate tourist bureau, deck themselves in sombreros before boarding bus day before Thanksgiving.

HURRY! HURRY!—Fran Plumley (far left), GD/E control clerk, does land-office business as GD/E, Stromberg-Carlson, Astro people line up for tickets to Dec. 19 Christmas dance. Tomorrow is last day for ticket sale.

CRA Calendar

(Convair Recreation Association has some 30 activities in operation for Convair, GD/E, Stromberg-Carlson people. For information call CRA Headquarters, ext. 1245.)

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AEROMODELERS — Flying sessions Saturday and Sunday mornings, 8 a.m. to 1 p.m., Clairemont Mesa flying site.

BASKETBALL — Convair entry participating now in City League pre-season tourney.

CAMERA CLUB — Christmas party tomorrow (Dec. 17), 7:30 p.m., Campus Chuckwagon.

COIN CLUB — Election of officers tomorrow (Dec. 17), 7:30 p.m., Convair cafeteria, Pacific Hwy.

FENCING — Workouts and instruction Fridays, 7-10 p.m., YWCA, 10th & C Sts.

GARDEN CLUB — Next meeting Jan. 6, Floral Association Bldg., Balboa Park.

GUN CLUB — Annual Christmas merchandise shoot Dec. 20, 9 a.m., Gillespie Field Range.

ICE SKATING — Thursday ice skating sessions for GD people, Mission Valley Ice Plaza, 6:30-8 p.m.

JUNIOR RIFLEERS — Christmas shoot and party Dec. 19, Gillespie Field.

MODEL RAILROAD — Work nights, Fridays, 7:30 p.m.; open sessions, Sundays, 1-4:30 p.m., House of Charm, Balboa Park.

MOVIES — Reduced prices for GD people at State Theater, Euclid and El Cajon Blvd. General admission: adults, $1; children, 35¢.

PISTOL CLUB — Dec. 27 shoot cancelled. Next club shoot Jan. 10.

RADIO CLUB — No meeting Dec. 24.

ROAD RUNNERS — Meeting Dec. 17, 7:30 p.m., Gillespie Field Clubhouse.

ROCKHOUNDS — Lapidary shack closed after tonight's session (Dec. 16) until Jan. 6.

SNOW SKI CLUB — Next meeting Jan. 5, Catamaran Hotel, Mission Blvd., 8 p.m. Register now for Jan. 16-17 ski trip to Mammoth Mt. by calling Joe Harris, 284-0278.

SPORTS CAR CLUB — Next meeting Wednesday (Jan. 6), 7:30 p.m., Convair cafeteria.

STAMP CLUB — Next meeting Jan. 7, 7:30 p.m., Convair executive dining room.

Two Teams Tie For Fun Rally

Flip of a coin decided the winning team in CRA Sports Car Club's fun rally Dec. 2 when two duos finished the hour's run around the country tied with 8 penalty points.

Team of Wally Killeaney, Dept. 42, driver, and Bill Stemple of Dept. 6, navigator, won the toss for first place. Sid Weiner, Dept. 27-6, driver and wife, Virginia, navigator, called it wrong to take second.

Rallymaster Tom Kienholz awarded third-place award to the team of Rod Savary (Dept. 6), driver, and John Zenari, also Dept. 6, navigator, who had 10 points marked against them.

Penalties were based on one point for each minute over the one-hour time limit and one point for each incorrect answer on the route questionnaires which required such information as: number of operating traffic lights, number of stop signs, specific addresses, description of buildings along the route.

Fifteen cars traveled the some 20 miles along the north and south sides of Mission Valley to San Carlos and through La Mesa business district before they wound up at Shakey's Pizza Parlor on University Ave. for awards and refreshments.

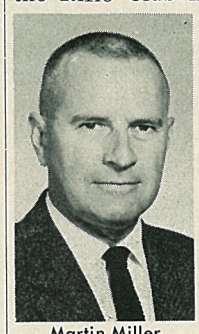
Next meeting will be Jan. 6 in the Convair executive dining room.

Sports & Recreation

Martin Miller to Take Helm Of Reactivated CRA Rifle Club

Martin Miller has been named commissioner of the reactivated CRA Rifle Club, J. K. Field, manager of personnel services, announced last week.

For the last four or five years, the Rifle Club has not operated as a separate activity at Convair. But with renewed interest generated among parents, especially, whose sons and daughters are taking up the sport through the Junior Rifleers group, there has been enough demand to warrant reorganization of an adult rifle group under CRA auspices, Field said.



Martin Miller

Miller, assistant supervisor of photography at Convair, serves as chief instructor for the Junior Rifleers. He is a National Rifle Association rifle and pistol certified instructor and also is certified by the California Department of Fish and Game as a hunter safety instructor.

His interest in firearms extends back to his childhood in New England when he and his brother stalked the woods with their single shot .22s and potted squirrels for their pelts.

During World War II, Miller qualified as expert in M-1 rifle and Thompson sub-machine gun marksmanship. Because of his knowledge of firearms he was assigned to an Army Engineering Corps demolition outfit as weapons sergeant during the severest of action in Europe.

He first joined Convair in 1940 in production control, leaving for military duty. He returned in 1953 and has been connected with the still photo lab ever since.

Besides his special concern that all young people should learn the correct and safe handling of firearms, his other outside interests include sailing, hiking, and painting. He is joined in his recreational activities by his wife, Betty, and children, Karen and Gerritt, both of whom are active Junior Rifleers.

Gun Club 'Big Money' Eludes Sportsmen

None of the 10 shooters vying in CRA Gun Club's Troy shoot Nov. 29 shot down the big money.

Nathan Tate of San Diego was the only one to go 25 straight in the 16-yd. event and none made 25 straight in the handicap. Bill Shrode of Fallbrook was high scorer of the day with a 47. Both he and Tate won $7.50 each for their efforts.

Now, cash at stake for the next shoot stands at $99.75 for 25 straight in handicap and $199.75 for combined handicap and 16-yd. perfect scores.

Coin Club Election Set For Tomorrow

Convair Coin Club members will elect officers for the coming club year at tomorrow night's (Dec. 17) meeting, 7:30 p.m., in the main Convair cafeteria, Pacific Hwy.

Among rare coins to be raffled will be a 1964 Kennedy set, 1950 one peso, 1943 Jefferson nickel, uncirculated, 1847 Hawaiian coin, uncirculated, 1945S 50-cent piece, 1944S 25-cent piece, 1921 dollar, 1923 dollar, and a La Mesa medal.

There also will be a turkey given as door prize. An auction will be held and refreshments served.

Skiers Signing For Jan. Trip

Convair skiers wil join Don Diego Club in a weekend in the snow over Jan. 16-17 with reservations open now, said CRA Commissioner Joe Harris.

The A-frame ski chalet at Mammoth Mountain has been reserved for the combined outing at a price tag of $20 per person. This includes transportation, two nights' lodging, and a Saturday night steak fry.

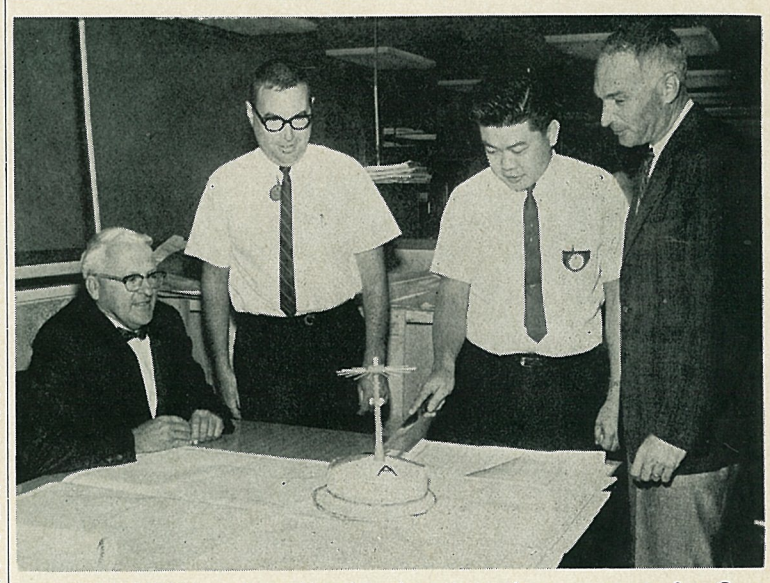
Reservations must be in not later than a week before the trip date, said Harris, who warns that accommodations are already filling rapidly. Call him at his home phone, 284-0278, as soon as possible.

Over 30 traveled to Mammoth over the weekend of Dec. 5-6 for the first ski trip of the season and between 40 and 50 went to Big Bear on both Saturday and Sunday of the same weekend for their first taste of snow.

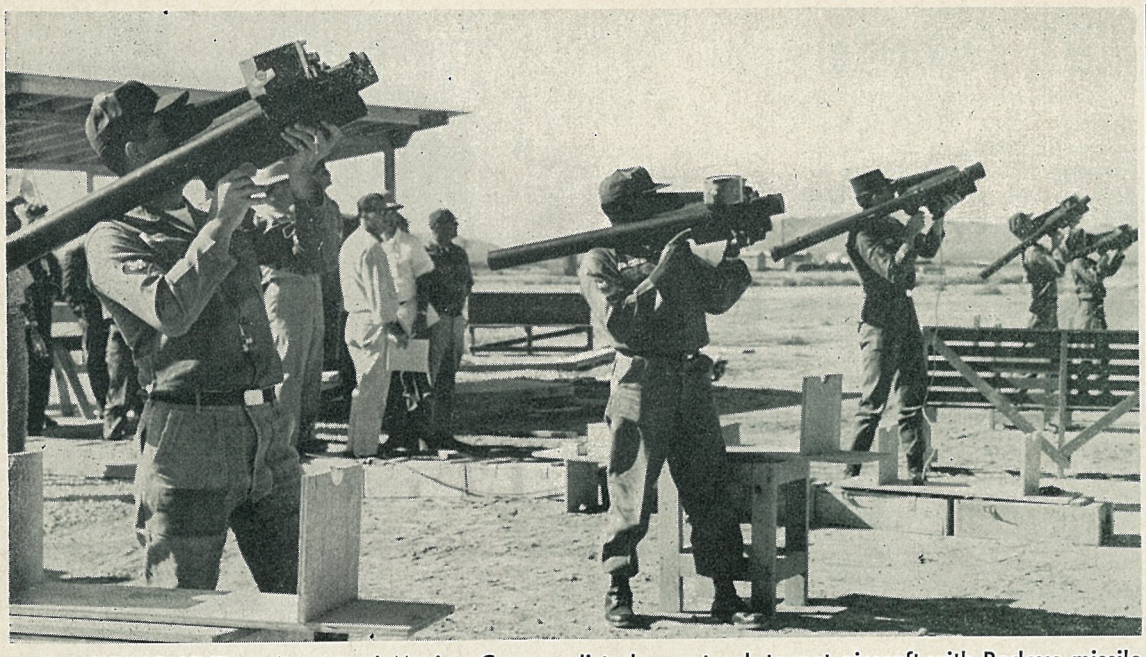
60 Five-Man Squads Compete at Traps

One of the largest CRA Gun Club monthly shoots drew a turnout of some 60 five-man squads at trap and 20 squads in skeet on Dec. 6.

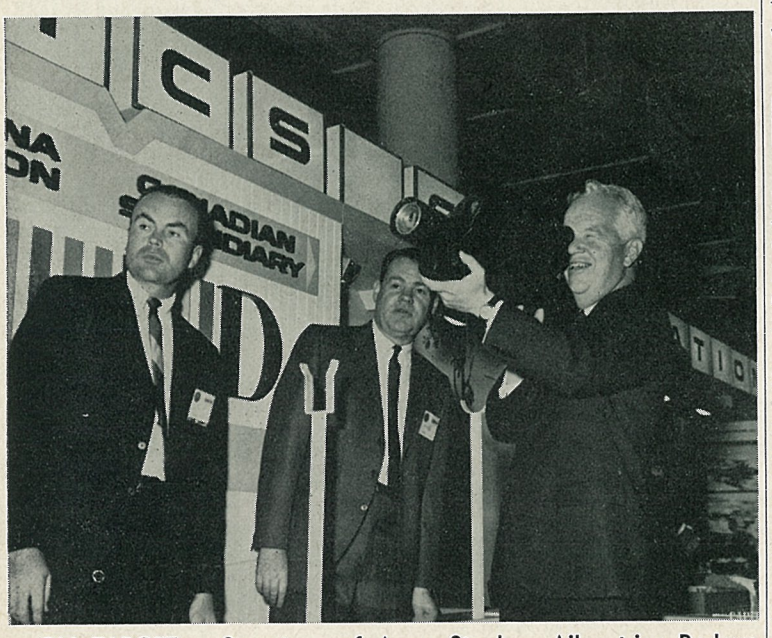
Sixteen commercially-raised pheasants went to winners in the sudden death shoot-off. Nathan Tate won three of the birds for lasting the longest. Runner-up James Mercier took home two pheasants. The next 11 top shooters won a pheasant each.



EDIBLE BUOY — Stan Uyeda, deputy project manager for Convair's oceanography program, cuts cake fashioned in shape of prototype buoy concocted for his birthday (today) by Mrs. Frank Pokorny. Enjoying occasion are Hal Driscoll, senior research engineer; Bob Devereux, oceanography program manager; Ken Samples, assistant program manager.



ON FIRING LINE — Army and Marine Corps enlisted men track target aircraft with Redeye missile launchers fitted with special electronic training devices. Training is part of three-week joint service familiarization program for new weapon, the world's smallest guided missile system.



ON TARGET — Secretary of Army Stephen Ailes tries Redeye simulator during recent Association of U.S. Army meeting in Washington, D.C. At left is Ray Lubeck of GD/Pomona's Redeye project office and Jack Sloan of GD/Pomona president's office. Many high ranking officials were included in estimated 3,000 persons visiting General Dynamics display — a joint exhibit of GD/Pomona and Canadair.

Army, Marine Gunners Trained For Redeye

The first class of Army and Marine Corps enlisted men qualified as gunners for the Army's shoulder-portable Redeye missile have completed training at Fort Bliss, Tex., the Army announced recently.

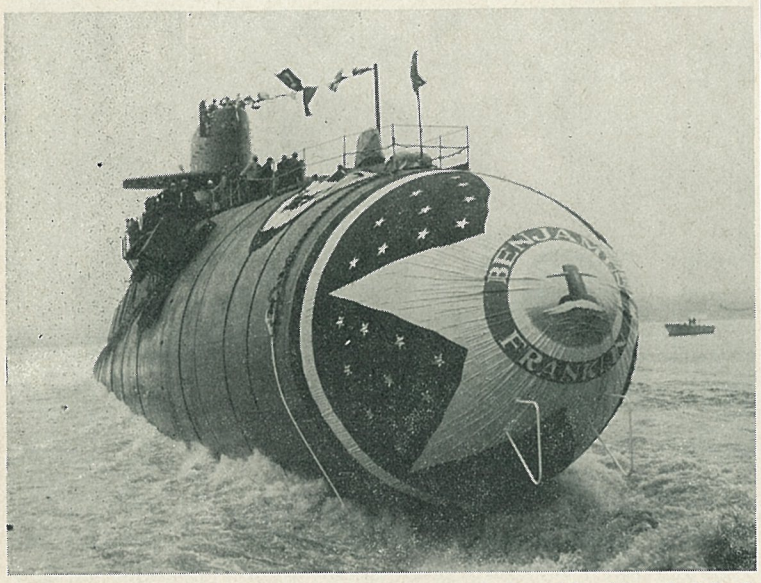
The trainees came from the Air Defense Board and First Guided Missile Brigade, Fort Bliss, the Artillery Board, Fort Sill, Okla., and the Marine Corps. They were trained in preparation for conducting Redeye engineering service tests.

The joint three-week familiarization program was conducted by the Air Defense Board—an element of the Army's Test and Evaluation Command, Army Materiel Command — and supported by General Dynamics/Pomona.

The course was designed to train men in handling and operating the approximately 30-pound Redeye to the degree of proficiency necessary for rapid and effective engagement of enemy aircraft in combat.

Since Redeye is a joint development of the Army and Marine Corps, both will participate in the testing program and both will issue Redeye to combat units as the system becomes operational.

GD/Pomona personnel taking part in the training program at Fort Bliss were W. H. Burns of customer training (Dept. 3), Hal Brown Jr., J. H. Barron and W. E. Ronsheimer of field test (Dept. 6), D. A. Lasby of Redeye program project office (Dept. 6) and Irv Fishlow of Redeye program management (Dept. 15).



BIG SPLASH—Polaris submarine Benjamin Franklin, Navy's 32nd, splashes into Thames River during Dec. 5 launching at Electric Boat Division, Groton, Conn. The 425-foot, 7,000-ton submarine, scheduled to join U.S. Fleet next year, is 12th Fleet Ballistic Missile submarine to be launched by Electric Boat.

'Bravo' Readied For New Task

"Bravo," GD/Convair's first long range telemetering buoy, which recently was subjected to 70 mile-per-hour winds during Hurricane Isbell off the Florida coast, is being readied for a new role in a deep-water anchorage.

The buoy prototype, now in an intensive test program for the Office of Naval Research, will be relocated some time after the first of the year in 1,000-ft. water depth on the axis of the gulf stream to measure mooring loads in the presence of strong currents. Robert Devereux, Convair oceanography program manager, says that currents up to 5 knots, nearly equal to the strongest ocean currents recorded in any part of the world, will sweep by the buoy.

New anchorage will be 14 miles off Hollywood Beach, Fla., directly east of the former location. The buoy will remain in its new mooring site approximately a month.

At present Bravo is at the Marine Acoustical Services dock in Miami for a complete system checkout. During the six weeks the buoy had been in Florida waters its systems accumulated the same amount of usage they would have experienced in almost a year of normal operation.

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Subcontract for fabrication of the steel hull for Convair's second long-range telemetering buoy, "Alpha," has been awarded Rohr Corporation's Antenna Division, San Diego, Calif.

Completion of Alpha, destined for West Coast tests, is slated for mid-April, according to Convair's project manager, Robert Devereux.

This prototype will be anchored off the California coast at Point Mugu to study behavior of the energy conversion equipment inside the buoy under known conditions of electricity demand, and to evaluate the suitability of the buoy as an environment for the electronics equipment it will eventually contain.

Devereux also announced the addition of Hal Driscoll, senior research engineer, formerly of Astronautics, to the oceanography program. Driscoll, who had been in Convair operations planning before transferring in 1959 to Astro in pre-design and advanced systems development, brings imimportant capabilities to the program, Devereux said.

GD/NEWS Schedule To Slip One Week

Today's issue of **GD/NEWS** (Dec. 16) will be the last published in 1964.

Because of the conflict of year-end holidays with the usual every-other-Wednesday publishing schedule, **GD/NEWS** will not appear Dec. 30 but will slip schedule one week, coming out Jan. 6 instead. The normal bi-weekly schedule will continue thereafter.

Aird Named GD Asst. Treasurer; Formerly at Canadair Ltd.

PETER J. AIRD, formerly assistant treasurer for Canadair Limited, has transferred to New York City as Corporate assistant treasurer, reporting to H. K. Pedersen, Corporate treasurer.

Aird, a 1949 McGill University graduate with BS in commerce, joined Canadair in 1959. He previously had been a partner in a Montreal accounting firm.

Edward Tucker

EDWARD J. TUCKER, former general auditor for American Airlines, has joined General Dynamics Corporation, reporting to William T. Lake, comptroller.

Tucker, a certified public accountant and Fordham University graduate, was a special agent for the FBI from 1941 to 1946 and was with Gahagan Construction Co. as assistant treasurer before joining American Airlines.

People Mobility

Interdivisional Transfers

(Following are recent personnel transfers among General Dynamics divisions. In parentheses are dates when individuals joined the company.)

PAUL R. PEARSON (1961) from Astro to Convair flight test engineering; **RONALD A. LANGE** (1950) from Astro to Convair engineering; **FRANK BERRY** (1957), **WALTER E. BLACK** (1952), **HENRY M. FENDRICH JR.** (1964) from Astro to Electronics-San Diego engineering; **HOMER E. ROBINSON** (1958) from Electronics-San Diego to Pomona production engineering.

JOHN A. WHALEN (1956), **HENRI GUYADER** (1963), **WILLIAM L. ECKERT** (1956) from Astro to Convair engineering; **BILLY VAN FREY** (1955) from Fort Worth to controller's office, Corporate Headquarters; **ROBERT A. SCROFANO** (1963) from Astro to Electronics-SD; **JOHN MARROQUIN JR.** (1956) from Astro to Convair flight test engineering; **LESLIE L. O'NEAL** (1958) from Stromberg-Carlson-SD to Electronics-SD purchasing.

WILLIAM R. SKINNER (1961), **GEORGE H. MOORE** (1960), **MAXWELL FRANK** (1956) from Astro to Electronics-SD; **HUBERT C. WATTON** (1956), **GORDON M. JACKSON JR.** (1961), **RODNEY G. WHITEAKER** (1956) from Astro to Convair engineering; **JOHN T. PERKINS** (1959) from Astro to controller's office, Corporate Headquarters; **LARRY A. DENNIS** (1959) from Astro to quality control, Electronics-SD.

RICHARD G. ROSEN (1962) from Astro to international department, Corporate Headquarters; **RICHARD L. MAISON** (1961), **RUSS D. CRIPE** (1959) from Astro to Convair engineering; **WILLIAM B. HANNA** (1955) from Fort Worth to Pomona Mauler Systems management inspection; **HAROLD Q. DRISCOLL** (1951), **HAROLD D. SMITH** (1956) from Astro to Convair engineering; **JESSE A. MAY** (1950) from Electronics-SD to Convair cost estimating; **CALVIN C. WHITE** (1956) from Astro to Electronics-SD.

WILLIAM R. SMITH (1962), **MITCHELL S. LANDOS** (1957) from Astro to Electronics-SD engineering; **JAMES C. RATLIFF** (1957) from Pomona to Corporate office (Huntsville, Ala.); **RAYMOND C. SEBOLD JR.** (1958) from Astro to Convair purchasing; **CHARLES E. KINNEY** (1961) from Astro to Fort Worth configuration inspection; **ARNOLD H. LAKRITZ** (1961), **OVID L. WILLOUGHBY** (1950) from Astro to Electronics-SD engineering; **CHARLES P. RAINS** (1964), **ROBERT W. McNAMARA** (1962) from Astro to Convair engineering; **WALTER M. WALKER** (1960) from Astro to Convair manufacturing research and development.

Pomona Lets $200,000 Contract For Redeye Assembly Facility

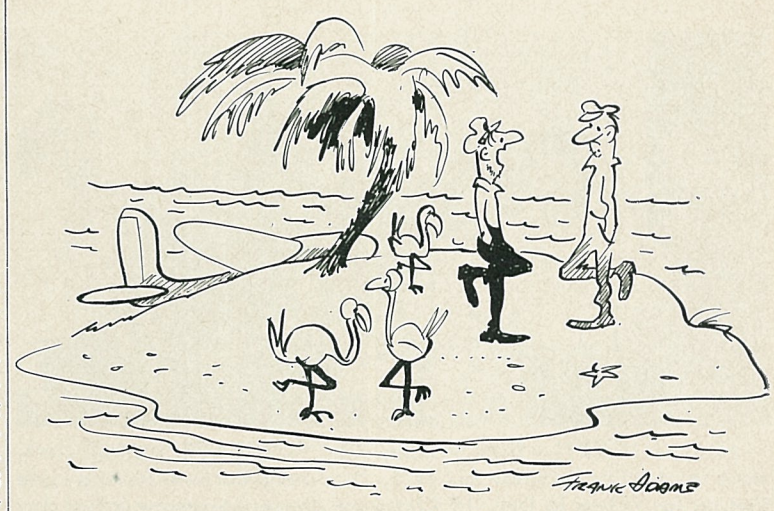
GD/Pomona has awarded a contract in excess of $200,000 to Nielsen Construction Co., of San Diego for a complex of buildings at the Redeye missile final assembly and test facility north of San Diego, G. E. Sylvester, vice president-operations, announced last week.

The facility is located on company-owned land adjacent to the government-owned Sycamore Canyon Test Site operated by Astronautics division.

The Redeye complex will include an assembly building, office, warehouse, small guard house and three separate small buildings for storage.

Completion of the buildings is expected by early March of 1965, and maximum of 25 persons are expected to be employed at the facility by the end of 1965. Bulk of Redeye production will be accomplished at the Pomona plant.

Grading of site and roads has been completed under a contract awarded last October to R. E. Hazard Construction Co. of San Diego. Paving of the roads and installation of 6,000 feet of 8-inch water main to the site are nearing completion.



"Do you realize we've been waiting here six months?"